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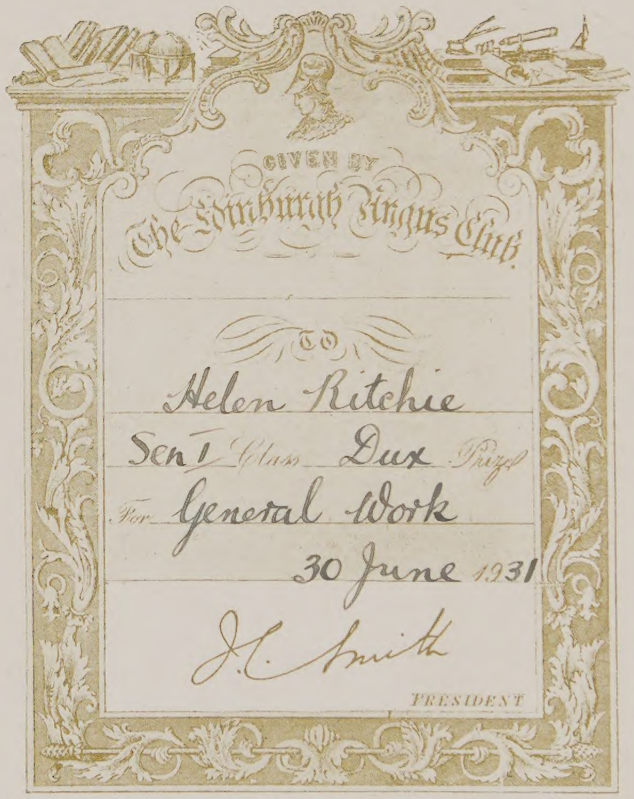
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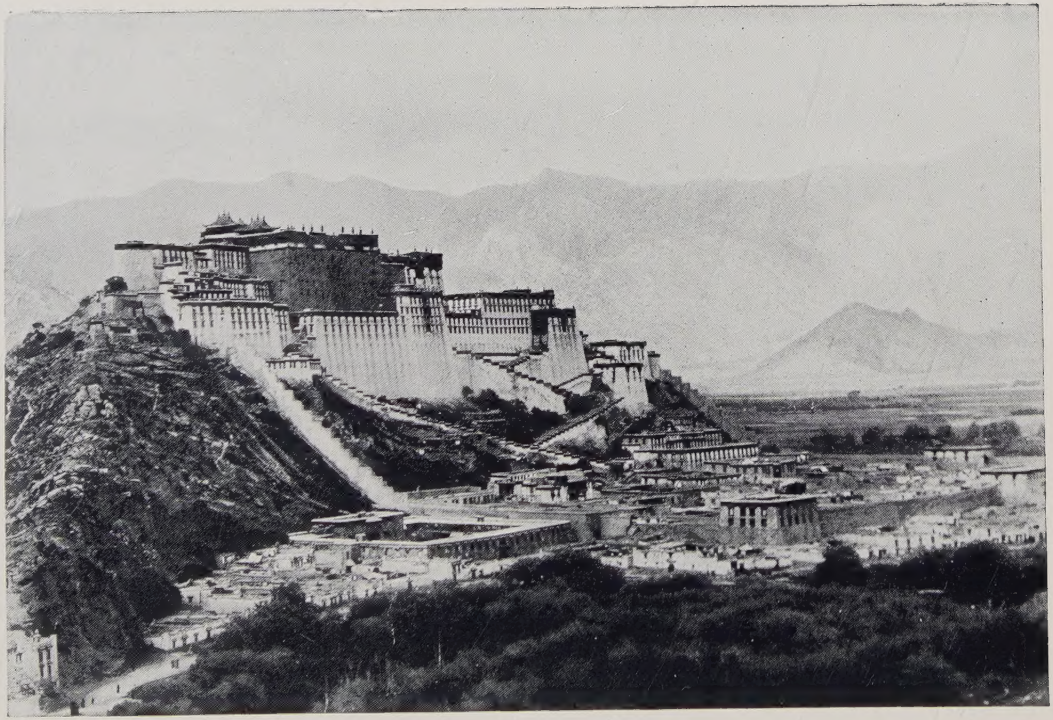

The palace at Lhasa of the Dalai Lama, the Buddhist Pope. The ascent to the palace is made up three long flights of stairs and four ladders. This was probably the first photographic view of the palace ever taken.

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INTRODUCTION

TWO thousand five hundred years ago there lived on the shores of the Greater Syrtis, a gulf of the Mediterranean Sea, between Carthage and Cyrene, a Libyan tribe called Nasamonians. Five young nobles, greatly wishing to learn something of the mysterious Sahara and the countries beyond, determined to make an expedition to the south. Herodotus, the Father of History, has given us a short account of their fortunes. They set out, he says, well furnished with food and water, and crossed first the inhabited country, then a region infested by wild beasts, and a great desert, through which they journeyed many days till they saw some trees growing in a plain. While they were gathering fruit off these trees some diminutive men came up and carried them away. Neither party understood the other's language. The Nasamonians were taken through vast morasses to a city inhabited by black dwarfs, and situated on the banks of a river running eastwards, full of crocodiles. The young men at length reached home in safety.

Thus was the Niger discovered. We may regard this as the first exploring expedition made deliberately into unknown lands, of which we have any historical record.

Since that far-off date the successors of the Nasamonians have steadily increased in numbers, until at the present day civilised nations can count a small army of enthusiastic men ready to risk life and wealth in learning the secrets of the still unexplored parts of the earth's surface. They are indeed far better equipped than Marco Polo or Columbus. The camera enables them to show to the world what they have seen. The theodolite puts it in their power to add something definite to the map of the world. Their vision is extended by the telescope. Arms of precision defend them better against man and beast. Neatly packed drugs aid them to fight disease. Preserved and essential foods provide a handy staff of life. In short, the latest discoveries of science are at their service.

It may be thought, perhaps, that exploration must be comparatively easy work to-day. Less laborious no doubt it is in some details than when Mandeville and Magellan travelled. But there are difficulties enough remaining to leave the romance of exploration untouched. Every explorer carries his life in his hand, however fine may be his outfit. Like St. Paul, he suffers perils of waters and of robbers; perils of the wilderness and of the sea. Like him, he suffers from weariness and pain, from hunger and thirst, from watchings and cold. Like him, he carries a burden of care—the care of a man who toils scientifically in the face of adverse circumstances.

Within the limits of this volume it is impossible even to notice all the modern explorers who have a claim on our admiration. Nor can the many sides of an explorer's activity receive equal notice, since the more technical

details of the scientific part of his work would not appeal to the general reader.

We select, then, a small group belonging to the nineteenth century, and chiefly to the latter half of it, whose exploits are in some cases unique, in others typical of what many other brave men have done. Each traveller will be to us as the Ulysses of his times; one who has seen—

> "Cities of men
> And manners, climates, councils, governments."

We shall follow him in his adventures, sharing in sympathy his difficulties and perils, his admiration of the scenes that Nature spreads before him, his intercourse with strange people, and interest in curious customs. This will teach us what qualities go to make up the Knight Errant of travel, and give us an insight into a mode of life which, in spite of all its hardships, causes him to exclaim—

> "How dull it is to pause, to make an end,
> To rust unburnished, not to shine in use,"

and constrains him after each interval of rest to plunge once more into the mysteries of the unknown.

PREFATORY NOTE

For the kind help they have given him in connection with the gathering of materials for the illustrations and letterpress of this book the Author begs to thank the following gentlemen:—

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CHAPTER I

FOUR YEARS IN THE WILDS OF ASIA

AS a preparation for the better understanding of this chapter the reader will do well to take a map of Asia and study the physical features of the countries known as Eastern Turkestan, Tibet, and Mongolia. Together, they form a vast tract of sterile, inhospitable land, hemmed in on all sides, and intersected by mighty mountain-chains radiating from the Pamir, or "Roof of the World," as it is locally named, situated on the extreme north of India. The Thian Shan and Kuen Lun mountains almost encircle E. Turkestan; the latter range also forming the northern boundary of Tibet, which is a gigantic tableland rising southward to the Himalayas and of an average height above sea-level equal to that of the summit of Mont Blanc.

While Tibet is the cradle of many great rivers, notably

the Brahmapootra, Yang-tse-Kiang, and Hoang Ho, both E. Turkestan and Mongolia are very poorly watered by streams that, after a comparatively short course, are lost in the sands or some quickly evaporating lake. For sterility these two countries may compete with the Sahara; and for the violence of their wind-storms, laden with sand or snow, they cannot be equalled. As a consequence, our maps are but sparsely supplied with names. Many races have at one time or other inhabited these desolate regions, but the ceaseless energy of Nature has overwhelmed their works. Where busy cities once stood, all is now sand-dune and silence. Their very sites are forgotten.

A few nomadic tribes still cling to the watercourses; and in places, where there is sufficient moisture to keep at bay the desolation of the desert, other cities have arisen. But in time these too will probably disappear before the resistless march of the dunes, the children of the disintegrating winds. And so a little piece more will be added to the great Gobi.

Despite the extreme unkindness of the three countries mentioned, they have a never-ending fascination for the explorer. To record the mere names of those men who, at hazard of their lives and in the cause of science, have pushed through the highlands of Tibet and the northern deserts, would demand a page or two of this volume. Bit by bit they have unravelled the mysteries of snow-clad mountain, wind-swept valley and sandy ocean; but much remains to be done, and every year sees fresh workers start on expeditions which shall increase the general store of knowledge.

Passing over the generality of these adventurous men we will fix our attention on the doings of Sven Hedin,* a Swede, who stands pre-eminent among the successors of Marco Polo, the Venetian traveller of the thirteenth century. At an early age he proved himself a born geographer. When but fifteen or sixteen years old we read that he made a series of maps of the arctic regions, showing most accurately the tracks of each arctic explorer. On leaving school he studied geography in Sweden and in Berlin, where he became a pupil of the great Baron Richthofen. A natural aptitude for science and a remarkable facility in learning languages being proved by several journeys in Persia and Central Asia, he prepared in 1894 for an investigation of, to use his own words, "that part of the world which was the cradle of the Aryan race, and from whose dim interior the Mongols streamed out over the whole of Asia and part of Europe, and where there is such a host of geographical questions still awaiting solution. . . . The object of my prospective journey is to traverse Asia from west to east, from the Caspian Sea to Peking, and in particular to explore the intermediate regions which are least known." † The nature of his task will be inferred from the fact that at the last moment he

* In his *The Heart of a Continent*, Captain F. E. Younghusband, himself a famous traveller, writes of Dr. Hedin: "He impressed me as being of the true stamp for exploration—physically robust, genial, even-tempered, cool, and persevering. . . . I envied him his linguistic capacities, his knowledge of scientific subjects, obtained under the best instructors in Europe, and his artistic accomplishments; he seemed to possess every qualification of a scientific traveller, added to the quiet, self-reliant character of his Northern ancestors" (p. 314).

† *Through Asia*, vol. i. p. 19.

determined to go alone, because, as he admits, he did not wish to involve a companion in dangers and hardships which he himself was quite ready to face. So for four years this dauntless explorer was practically cut off from civilisation, attended only by the wild sons of the desert.

To aid him in his observations he took with him a very complete outfit of scientific instruments, which included a couple of cameras and a large supply of photographic plates and chemicals.

Abandoning the trans-Caspian route, Dr. Sven Hedin crossed the Kirghiz Steppes along the right bank of the Syr Daria to Tashkend, and on to Margilan, where he made preparations for his journey over the Pamir in the early part of 1894.

On February 22nd the expedition left Margilan to follow the difficult mountain path through the Alai Mountains, over frail bridges and perilous tracks, barely a foot wide, that overhung the brawling torrent of the Isfairan. At places the path was covered with slippery ice, sloping to the precipice, along which progression was possible only after the ice had been cut into steps and sprinkled with sand for the animals to get a footing; the explorer himself having sometimes to crawl on all fours. Further on avalanches threatened the party. "These ice-slides," writes the explorer,* "rush down the mountain-side with such overwhelming force that, under the enormous pressure, their lower strata become converted into ice, and anything living which should have the misfortune to be

* *Through Asia*, vol. i. p. 124.

buried under it would be literally frozen fast in the block of ice as hard and vitreous as glass." An avalanche a quarter of a mile across and nearly seventy feet deep rushed across the path a day before the caravan arrived at the spot. And just after the Tengis-bai pass had been crossed a terrific snowstorm swept through it, which, had the party been a day later, would probably have annihilated them all. The snow-*buran* is a terror of the Pamirs. One moment the sky is clear, the next down swoops the flake-laden tempest, blinding, dazzling, stupefying the traveller, who, if he be separated but a few yards from his companions, is soon beyond the reach of help. Amid the howling of the elements the loudest shouts, even the report of a gun, are undistinguishable. The caravan blunders on, and the straggler's fate is sealed.

After a week of these "fascinating perils" of the Alai mountains Dr. Sven Hedin descended into the valley through which the Murgab, a tributary of the Amu Daria, flows. This river is fuller at night than in the daytime, as the snow which melts on the mountains during the hottest period of the day does not reach the Murgab till several hours afterwards.

The march in the valley was much impeded by the deep snow, into which the horses sank to the girths. In parts it even became necessary to spread the felt mats, used to cover the tents, for the animals to walk on, the rear mats being transferred to the front successively as the horses passed over them. A man must have a hardy constitution to endure the extremes of temperature prevailing in these regions. Though the thermometer showed

125° in the sun, in the shade it stood at but 14°, and a traveller could literally be almost scorched on one side while in danger of frostbite on the other. In the night sixty degrees of cold was quite a common experience. Eventually, however, the expedition arrived safely at Fort Pamir, a Russian outpost in the heart of the snowy wilds, where 160 Cossacks and their officers guarded the interests of the Czar. The difficulty of building such a structure on the "Roof of the World" is evident from the fact that all the materials had to be fetched across the mountains from Osh in Fergana, 200 miles away! In their isolated fortress the soldiers lived happily, accounting the place a paradise, because it was free from the presence of women!

After a welcome rest among these kindly people Sven Hedin prepared for a visit to Mustaghata, the loftiest mountain of the Pamirs, rising to a height of 25,600 feet above sea-level. Its name, which means "The Father of the Ice Mountains," indicates the veneration in which it is held among the Kirghiz, who have honoured it by using their imaginations to weave curious legends and stories around the great shining peak that looks out over the deserts of Central Asia. And the traveller from other countries also falls under the enchantment of the snowy summits of the Ice Father.

"Whenever the Kirghiz pass it [Mustaghata]," says Sven Hedin,* "or first catch sight of it in the course of a journey, they fall upon their knees and say their prayers. They declare that it is the abode of three score and ten

* *Through Asia*, vol. i. p. 218.

saints. . . . Within its interior dwell, amongst others, the souls of Moses and Ali, the son-in-law and nephew of the prophet Mohammed. When Ali lay at the point of death he prophesied to those about him that as soon as the breath was gone out of his body, a white camel would come down from heaven and carry him away. As he said, so it came to pass. When he was dead the white camel appeared, took the holy man on its back, and hastened with him to Mustaghata. The Kirghiz are firmly convinced that Moses' soul also abides in that mountain; and for that reason they sometimes call it Hazrett-i-Musa or the Holy Moses."

The Kirghiz of Subashi also told the explorer another story. "Many hundred years ago an aged *ishan* (holy man) went up the mountain by himself. And when he came a certain way up it, he found a lake and a little stream, with a white camel grazing on the shore. There was also a large garden planted with plum-trees, and under the plum-trees there walked to and fro a number of venerable old men dressed in white garments. The holy man plucked some of the fruit and ate it. Then came one of the venerable inhabitants of the garden, and said to him, that it was well he had done so, for if he had despised the fruit, as all those aged men had done, he would have been condemned like them to stay on the mountain, walking up and down the garden till the end of time. Then came a rider on a white horse and caught up the holy man, and galloped with him down the steep mountain-side. And when the *ishan* came to himself, he found that he was down in the valley, and could only

remember dimly all the marvellous things he had seen." * The Kirghiz firmly believe that there is on the mountain a mysterious city named Yanaidar, an abode of the blessed, who enjoy perpetual happiness in gardens which everlasting spring loads with never-failing fruit. There the women are beautiful and never age; and death, cold, and darkness are unknown. But such delights are not for ordinary mortals, to whom the way is barred by terrific abysses, and cliffs covered by ice of blinding brightness, and winds that would sweep off any impious adventurers like so many grains of sand.

Yet, in spite of these beliefs, Hedin found several Kirghiz quite prepared to assist him in an ascent of the holy mountain. After a consent had been reluctantly given by the Chinese authorities, whose suspicions caused them to search his baggage, lest Russian soldiers should be concealed therein, he set off armed with the usual mountaineering paraphernalia. A first attempt was unfortunately foiled by a severe attack of inflammation of the eyes, which compelled him to withdraw for a couple of months to Kashgar and recuperate there. During the return to the mountain for a second essay, his party witnessed some Kirghiz games. These may be compared to the pancake scramble held on Shrove Tuesday at Westminster, the pancake being replaced by a slaughtered goat, while the scholars are represented by some scores of wild horsemen. The rules of the game must, however, in this case have been rather vague, since two competitors entered the fray mounted on sharp-horned yaks, which

* *Through Asia*, vol. i. p. 219.

speedily made their presence felt among the horses! The goat was repeatedly seized by a rider stooping from his saddle and borne off, the other Kirghiz thundering in pursuit and endeavouring to wrest it away. At the end of the game the poor carcase had been battered almost out of recognition, and nearly every man had received some shrewd knocks, and the horses limped over what, owing to the number of caps and whips spread about, resembled a small battlefield.

For the ascent of the mountain yaks were used. These animals are marvellously sure-footed, though more obstinate than mules, and are able to travel at heights where the rarefaction of the air would bring all other beasts of burden to a standstill. During the several attempts to reach the summit the greatest height attained was 20,660 feet; from which elevation the traveller witnessed all the glories of a moonlight night on Mustaghata. "A curious feeling of being at a vast distance from the earth took possession of me. It was difficult to realise that the four continents actually lay below my feet; and that a girdle drawn round the earth at the level where I then stood would cut off only the tops of a very few mountains in Asia and South America."*

But the explorer found none of the legendary spring weather of Yanaidar in those altitudes. On the contrary, the cold was so great that all hopes to reach the loftiest crest had to be abandoned; yet Sven Hedin could claim that he had ascended Mount Mustaghata to a greater height than had previously been attained by any European.

* *Through Asia*, vol. i. p. 379.

After a winter in Kashgar he undertook a very different task, namely, the crossing of the great Takla-Makan Desert of E. Turkestan from west to east. Like Mustaghata, this region is the subject of many legends; though some are perhaps more worthy of a little credence, as they centre round ancient cities buried beneath the sand. The inhabitants of Merket, a town on the westerly edge of the desert, include a number of men who make it their business to explore the sand-dunes for treasures of gold, which they hope to find sooner or later if they only hunt diligently. Their unsuccess doubtless gave rise to the story that if a man were fortunate enough to stumble on heaps of silver and gold it was useless to load his camels with them, as the spirits of the desert would permit him to return only after the treasure had been restored to its original position.

In a paper read before the Royal Geographical Society Sven Hedin related that in some places the desert is called Dekken-dekka, because it is believed that 1,001 cities have been entombed beneath the dunes.

It was to investigate the truth of such statements that the adventurous Swede started from Merket on April 10th, 1895, with several attendants and eight camels, the latter carrying 100 gallons of water in tanks to last the travellers until they reached the Khotan Daria, on the further side of the Takla-Makan. As the expedition rode through the streets, the spectators looked gravely on what many of them regarded as a doomed band. And, as will be seen, their fears were only too well justified.

FIGHTING THE DESERT.

During the first thirteen days all went well, and water could be found by digging, brackish, but good enough for the camels to drink. The caravan then reached a couple of small lakes, inhabited by large flocks of ducks and geese, and surrounded by groves of poplars and tamarisk trees. There it rested two days—days which afterwards seemed to have been spent in an earthly paradise.

On the 23rd the true desert was entered. Anyone who has not read a description of the Central Asian deserts will probably regard them as level expanses, over which the eye can range to great distances. But furious windstorms, raging many days a year, and the comparative absence of moisture, keep the surface of the ground, broken into an infinite number of particles by the action of cold and heat, in almost perpetual motion. Small protuberances serve to dam back the sand, which gradually collects in a long ridge, the crest of which is continually breaking off and slipping down on the leeward side of the dune, where the sand is soft and treacherous; whereas on the windward side it is beaten hard by the wind. The sheltered slopes have a uniform angle of about 30° with the horizontal; the exposed flank may rise almost imperceptibly, be perpendicular, or even overhang its base, according to the particular circumstances attending its formation. Some of the Takla-Makan dunes rise to the extraordinary height of 350 feet, and cross one another at an angle so as to form the meshes of a gigantic network. As may be imagined, the

difficulty of crossing these sand billows was formidable enough; even for men and animals in good condition.

On April 24th the caravan had a taste of a desert storm, whirling the sand along in clouds and columns not more than a dozen feet high, so that though the travellers moved in an atmosphere which prevented them from seeing clearly in which direction they should advance, the sun still streamed down on them with full fierceness from the blue heavens. Two more days passed, and then the question of a water supply became serious. On the evening of the 26th the men dug a well in the bare clay between two dunes, working with the energy of desperation. At a depth of three feet they met signs of water, and their courage rose. Men, camels, sheep, even the hens, crowded round, waiting eagerly for the promised water; but, alas! a few feet further down the sand was dry again. Then despair seized all but the gallant leader, who, on examining the tanks, found that there was still a little left. For the future, until fresh water was discovered, each man would receive two cupfuls a day, the sheep and dogs a bowlful; while the camels must do without, sustaining themselves as best they might on the hay and straw with which their saddles were stuffed.

No treasure had indeed been found or buried cities; but the genii of the desert, Thirst and Weariness, were laying their curse on the caravan. Wherever the eye turned there was nothing but sand, sand, sand. Even in the furthest distance no sign could be descried of the woods flanking the Khotan River. Clouds blew up. The men stood ready with the tent cloths to catch the promised rain.

traversed during this terrible march.

But the clouds passed over without shedding a single drop.

On the 29th there was left two quarts of water—stolen by one of the guides. The camels were fed for the last time on the whole of the butter supply.

Dr. Hedin's own words will best describe the *finale* of this terrible march.

"On May 1st we were tormented still more with thirst; the men drank the camels' rancid oil, and I drank some Chinese brandy, which otherwise was used for a lamp-stove. This paralysed my muscles, and I dragged myself laboriously along, far behind the caravan, ready to drop at any moment, in the burning rays of the sun. The bells of the camels could no longer be heard, but I followed the tracks, and after walking on about three miles, I found the others lying flat in the sand. A couple of them were weeping and calling upon Allah. Even the camels had lain down tired to death and with outstretched heads. We had hardly enough strength to pitch the tent. We undressed, crept into the shade of the tent, and lay there all day. We slaughtered the last sheep, in order to drink its blood, but it was so thick and sickening that no one would taste it. The men put up with a drink of still worse character, which was provided by the camels. It was mixed with vinegar and sugar, and doubtless hurried on the death of the desert man and Mohammed Shah. They got lost the same evening, and we never heard of them again. Even Islam wasted his strength in this way.

"As the sun began to set, I felt myself entirely re-

stored, and with Islam and Kasim and the five camels I left the miserable camp, where everything except my notes, instruments, money, and some other necessary things were left in the tent. In order to save my strength I rode on a camel, but it soon became pitch dark, and we could not see where we were going. I therefore lit a lantern and went on foot to find out the best passage. At midnight we had only gone two and a half miles; one of the camels had been deserted, and Islam was done for. Now that I saw the end was near, I decided to leave everything, took Kasim with me, and hurried to the east, after having encouraged Islam, and told him to follow our tracks as soon as he was able to walk again. Thus we left the last fragment of our caravan in Egyptian darkness. The lantern was left burning beside Islam, but its weak rays were soon hidden by the dunes.

"... I hurried eastward with Kasim. We walked, with innumerable interruptions, all night. At eleven o'clock on May 2nd it was so hot that it became black before our eyes, and we rested all the rest of the day. We undressed stark naked and buried ourselves in the sand, with our clothes hung above our heads on the spade by way of protection from the unmerciful sun.

"From six till one o'clock at night, we walked in the moonlight. After a short rest, we crept on over this ocean of fine, yellow sand, which appeared to be endless. Suddenly Kasim stopped short on the morning of May 3rd, caught hold of my shoulder, and, with a blank stare, pointed to the east. I looked and looked, but could not discern anything unusual; but, with his falcon

eyes, he had descried a green tamarisk, on which our hope of rescue was now concentrated, for its roots must reach down to water. When we at last reached the bush, we thanked God for his mercy, and I have never before so forcibly realised that the Mohammedans have the same God as the Christians. We rested awhile, and chewed the juicy needles of the tamarisk like animals. It was the olive branch which showed there was a shore to the desert ocean, an outlying rock which causes the shipwrecked seaman to hope that the coast is near. In the shade of another tamarisk we rested all day, from ten till seven o'clock. In the evening we reached three fresh poplars, where we tried to dig a well, but were not strong enough; so we kindled a fire instead, in order to let Islam know where we were, if he should still be alive."

"On May 4th, we were discouraged again by the appearance of a high belt of sterile sand. During the hottest hours we rested again under the shadow of a tamarisk. When I dressed myself again at seven o'clock and encouraged Kasim to come on, he hissed out that he was not strong enough. I then continued alone until one o'clock at night, when I sank down in utter fatigue under a tamarisk. Some hours later Kasim came staggering up, and we continued together. After a short rest, we dragged ourselves along on May 5th with the waning strength of dying men: Kasim looked dreadfully giddy and confused. But at last our hope grew lighter—we saw a dark line along the horizon: it was the wooded banks of Khotan Daria! We walked into its leafy

arbours, and realised that the river was near at hand, but were not able to walk any further in the heat of the day, so we sank down under a leafy poplar. At seven o'clock in the evening, taking the spade handle as a staff, I crossed the wood, creeping long distances on all fours. Kasim remained where he was, lying on his back, motionless, with eyes wide open and mouth gaping, and he did not answer when I asked him to go with me.

"Then the wood suddenly ended, and a plain, lit up by the pale rays of the moon, spread out before me. I at once understood that it was the bed of the Khotan Daria, but I found it dry, and waiting for the summer freshets from the mountain; but I did not think that I was doomed to succumb in the very bed of the river. I therefore crossed it, and with great difficulty reached the opposite bank, whose woods and reed thickets could be dimly seen in the darkness. It had taken me five hours to go scarcely two miles! All of a sudden a duck flew into the air, water splashed, and I stood on the edge of a little pool of fresh, clear water, which was still left in the deepest part of the bed of the river, where the stream had last flowed."*

The intrepid Swede—for his courage alone had carried him through—proved himself the most self-controlled of the scientists. Just imagine what must have been the intense desire for knowledge that drove him, although dying of thirst, to feel his pulse before drinking, and ascertain that it was beating forty-nine to the minute;

* Quoted by permission from the *Geographical Journal*, March, 1898.

After dreadful sufferings Dr. Hedin found water in the almost dried up bed of the Khotan River. He carried his own [illegible] and [illegible] his two jackasses [illegible] of water, to Kasim, one of his companions, who was thus in the very last moment [illegible]

a record which in itself proves the extreme exhaustion of the observer ! *

Having satisfied his own needs to the full, without experiencing any ill-effects from the indulgence, his first thought was for his companion, to whom he bore water in his Swedish top-boots, and so rescued him from the very jaws of death. He then left him to go in search of food, and after living on grass and tadpoles for three days and two nights fell in with some shepherds. Kasim followed up his tracks, and Islam, who had been found by some merchants, also rejoined him, leading the camel that bore his notes, some instruments, and the Chinese money. The remaining seven camels and two men had perished; and but for the unselfish heroism of Islam all the records of this terrible journey would have been lost too. A year or more afterwards Sven Hedin recovered some of the missing instruments, his camera, medicine chest, and cooking-stove, which had been stolen by the merchants who rescued Islam.

The three survivors returned to Kashgar; and at the end of 1895 Hedin left that town for the last time, bent on a further search for the mysterious sand-buried towns of the desert. To use his own words: "My first journey across the Takla-Makan had been disastrous; the second proved a series of triumphs. On the first journey I sought for ruins of an ancient civilisation, and sought in vain; the second journey clearly demonstrated that the

* The normal rate is about 70 to 75 beats a minute. On Mustaghata, at an elevation of 20,660 feet, the explorer counted 106 pulsations in the same period.

thousand and one legends of hidden treasure and cities buried in the sand were not altogether old wives' tales." *

For this second crossing of the desert Hedin chose Khotan as his starting-point and struck in a north-easterly direction towards the Tarim River. The passage took forty-one days; but he had learnt his lesson and travelled with little luggage. Though the expedition was short of water by the end of the journey, it did not experience such sufferings as those of the previous year.

Anybody interested in archæology will be fascinated by the story told by Sven Hedin of how he discovered, on the edge of the old course of the Keria Daria, the remains of what must once have been a great and populous city—Takla-Makan. As far as the eye could reach rose the weather-worn frames of houses, covering an area 2½ miles in diameter. Excavation revealed images of Buddha, tastefully painted walls, pillars, and evidences of various kinds of industry. Basing his calculation on the rate at which the sand-dunes travel, Hedin concludes that this "second Sodom in the desert," as he calls it, was overwhelmed some 1,500 years ago.

In the centre of the desert dwells the wild camel, an animal about the origin of which opinions widely differ. Przhevalsky, the famous Russian explorer of Central Asia, held that wild camels are descended from strictly wild ancestors. But the natives regard them as the descendants from tame animals, which have strayed into the desert and bred, their offspring becoming wilder in each succeeding generation; until at the present time

* *Through Asia*, vol. ii. p. 848.

they are so shy that the mere smell of a camp fire will urge them to a flight that lasts for some days. This shyness Sven Hedin, who agrees with the shepherds' theory, at least so far as concerns the camels of the Takla-Makan, attributes to an "instinctive feeling that their ancestors, thirty or forty generations ago perhaps, were bound at camp fires, and now they have a feeling that human beings are their very worst enemies, and their ancestors have been the slaves of men." The same uncertainty surrounds the origin of the wild horse of Central Asia and North Africa; and in both cases it appears impossible to decide whether the animal's earliest development was from a domesticated or wild creature. It must at any rate be conceded that there is a striking resemblance between the tame species and their brethren of the wilderness.

On reaching the Tarim Hedin struck eastwards to investigate the problem of Lop Nor, which he was able to solve to his own satisfaction.

Lop Nor, the lake into which the Tarim flows, was first visited by Przhevalsky among Europeans, who found it to be fresh and also a degree further south than the lake marked in Chinese maps. As the natives, when questioned by the Russian explorer, denied the existence of a lake further north, Przhevalsky concluded that he had discovered the historical Lop Nor of the Chinese maps. But Baron Richthofen maintained that a lake which had no outlet must be salt; and that therefore this body of fresh water could *not* be Lop Nor, but a lake of more modern formation.

Hedin therefore determined to visit the spot where the Chinese Lop was marked; and in the same latitude he found a string of four lakes, which he concluded to be the remains of the old Lop; especially as that region was wooded with poplars of the same kind as those bordering the Tarim. Now, the Karakoshun, or Lop of Przhevalsky, is destitute of these trees; so that there seemed to be no doubt that Richthofen was correct in considering it a modern formation. His views received additional weight from the statement made to Hedin by an old man living near the northern lakes, to the effect that in his grandfather's time the site of Przhevalsky's lake was an expanse of dry sand. Some years later, as we shall see, the truth was finally brought to light in a very interesting manner.

All the lakes in this district are overgrown with reeds, which in places reach a height of nearly thirty feet, and are so dense that a man may safely walk over the top of them. The Lop-men, who live almost entirely on fish, keep open narrow channels through the growth for their poplar dug-out canoes, plucking out the new shoots of the reeds every year.

Hedin spent a very pleasant time among these lakes, even in spite of clouds of mosquitoes, and returned to Khotan, to prepare for a journey through northern Tibet and China to Pekin.

For two months he pushed through the plateaux of the Kuen-lun Mountains, without sighting a single human being; then crossed the Tsaidam Desert, and skirted Koko-nor lake on the north. The march was punctuated by

troubles with some of the men engaged to accompany the caravan; by terrific hailstorms; and by threatened attacks of Chinese robbers, the Tanguts. At Kumbum Hedin visited a temple containing an image thirty feet high and plated over with gold; and a shrine famous for a magical tree that, according to the *priests*, put forth leaves bearing the Buddhist prayer "Om maneh padmeh hum." Rumour, however, ascribed the words to a combination of priest and paint-brush!

The country round Sining-fu, a town on the upper reaches of the Hoang Ho, had been, a few months before Hedin's visit, the scene of the great Dungan revolt. The Dungans, a fanatic Mohammedan race, quarrelled among themselves on a point of religion. The Buddhist authorities intervened, and executed some of the leaders; and in retaliation the Dungans massacred a body of Chinese soldiers. This was a signal for a general rebellion, during which 50,000 Chinese and as many Dungans are said to have perished. The Mohammedans showed great courage, the Chinese very little—as may be inferred from the following episode:—

"A large force of them beleaguered a Mohammedan town near Sining, and shot at its walls for three days, but did not dare to make an attack, fearing that the inhabitants were prepared to play a ruse on them, since there were no sentinels posted on the walls. General Ho came to the scene and had the gate blasted open. An old blind woman, the only remaining being in the town, came up and said that all the rest had fled to the mountains long ago, and she had been wondering why

the Chinese had been making such a noise with their cannon outside the walls." *

From Sining the route led through the Nan Shan Mountains to Liang-chau, whence Hedin was able to telegraph to the King of Sweden to say that he was nearing his journey's end. The Chinese are unable to comprehend the action of the telegraph, and believe that messages are transmitted on little balls of paper which travel along the wires at a speed too great for the eye to see them. They ascribe to the insulators a very peculiar purpose, namely, to act as halting-places for the paper balls in case of rain coming on! But, after all, it is not so long since an old English country-woman wished to send a pair of boots to her son by telegraph, and by the advice of the clerk, who was fond of a practical joke, sat for a long time at the roadside watching the wires. So the Chinese may be excused.

Hedin next crossed the Alashan Desert to Ning-sha on the Hoang Ho. Here his attention was drawn to the cruel custom of cramping a Chinese woman's feet, or rather a girl's, as the operation takes place between the fifth and sixth years. The big toe only is spared, the other four being tucked under the foot and held there by bandages until they have "set" in that position. The torture of this operation is most intense. Sometimes the poor victim is crippled for years by it, suffering agonies from the slightest movement of her feet. And when at last she is able to walk, her gait resembles a duck's waddle. And yet so curious is the strength of

* *The Geographical Journal.*

custom and tradition, that a woman who prefers to have ten good toes must give up all hopes of getting married! Yet before judging the Chinese ladies too hardly we must remember the tight-lacing and foot-torturing boots to which a good many of their white sisters are quite ready to submit at the promptings of personal vanity.

The intense cold of the Ordos Desert had to be faced before the party reached the Hoang Ho again; but after that travel was comparatively easy to the gates of Pekin, where a warm welcome and a great pile of letters awaited the explorer. He found, however, that four years spent in the wilds caused him to weary quickly of gay society; and though he had two comfortable routes by sea and land open to him, he preferred returning home through the Mongolian deserts and Siberia.

In the introduction to his book,* Sven Hedin gives some figures about the journeys which ended at Stockholm on May 10th, 1897.

He had mapped out a route 6,520 miles long, or one quarter of the earth's circumference. Of this distance 2,020 miles were through regions hitherto never visited by Europeans. In all, he travelled 14,600 miles, at an average rate of rather more than $2\frac{3}{4}$ miles an hour.

The important services rendered by him to science were promptly rewarded. King Oscar decorated him with the Order of the North Star, in diamonds—a distinction that has only been received by four members of that Order. Among other decorations came the

* *Through Asia*, which the writer of these lines can heartily recommend to all persons interested in travel and adventure.

Founder's Medal of the Royal Geographical Society, London, "For his important exploring work in Central Asia, and especially for his survey of the glaciers of Mustaghata, and for being the first explorer to cross the Takla-Makan Desert, for his discovery of a new route south of the Kuen-lun range, and for his investigation of the physical geography of the Lop region."*

* *Year Book and Record of the Royal Geographical Society.*

CHAPTER II

FURTHER ADVENTURES IN EASTERN TURKESTAN AND TIBET

GREAT as had been his achievements, Dr. Sven Hedin was not content to rest on his laurels. Shortly after midsummer of 1899 he left Stockholm for the fourth time in search of fresh worlds to conquer in the heart of Asia, encouraged by the pecuniary support of the King of Sweden and Norway, and several Swedish gentlemen.

The most interesting points of the following three years of travel are — the systematic mapping of the Tarim River from Lailik to Karakoshun, the lake into which it empties; the discovery of the site of the ancient Lop Nor, and of ruins on its edge; and his attempt to reach Lhasa, the sacred capital of Tibet. Speaking generally, his route lay outside that of his previous journeys in Central Asia, as he had no desire to go over old ground again, the Lop district excepted.

As the Tarim* had never yet been navigated by an explorer, he made elaborate preparations for descending

* The Tarim, otherwise known as the Yarkand River, flows due east on the north of the Takla-Makan Desert.

it by boat. A ferry-boat was bought, and by the aid of smith and carpenters, soon converted into a commodious dwelling and observatory. A tent was set up in the forepart, where he sat mapping the course of the river in detail as the boat floated down on the current. Amidships rose a hut of planks and black rugs to serve as a photographic dark-room, provided with tables and benches, and accessories for the development of plates. The servants' quarters, kitchen, and baggage occupied the stern; and for comfort's sake a smaller boat was taken for the commissariat—flour, grapes, melons, vegetables, live sheep and fowls. A small English collapsible boat, for independent trips, completed the outfit.

Sending on a caravan by the land route to the Lower Tarim, Hedin gave a parting feast to the natives of Lailik, and started on what he considered to be one of his pleasantest travelling experiences. The smooth motion of the boat was indeed a welcome contrast to the swaying of a camel's back. Every moment the landscape unfolded itself in an ever-changing panorama, every feature of which was minutely recorded on the map. When the weather became uncomfortably hot, refreshment could be found in the river. As night came on the boat was moored, and the crew went ashore to eat and sleep, after the volume of the river had been carefully measured and recorded.

Sandbanks, sunken trees, and rapids required a constant outlook to be kept. There was danger, too, from the high, crumbling banks. But the traveller's chief anxiety arose from the gradually diminishing volume

of the Tarim, and the approach of winter, which, as soon as it began in earnest, would stop the voyage. It thus became a race against time to reach the caravan rendezvous before the ice blocked further progress.

Sven Hedin thus pictures the earlier stages of his river journey: "The boats glided noiselessly through the dense forests, which were often so thick that scarce a ray of sunlight pierced through to the dark hiding-places and holes in which the wild boars, tigers, and other beasts of the jungle made their lairs. We glided on day after day, week after week, down the dark waters of the Tarim, through the enchanted forests, which shut it in, as it were, along a kind of Venetian thoroughfare lined by palaces magically changed into trees, and by quays of golden shimmering reeds. When the current flowed more slowly, the boatmen nodded in turns over their punting-poles. And when the wind blew through the forest, it scattered a shower of golden leaves over the face of the river, making a golden waterway for us all through the autumn, as we followed every curve and winding of the stream. It was as though we were threading enchanted sargasso seas."

In many places the Tarim winds in a most astonishing way, in almost circular bends, so that after some hours' travelling the boat returned to the same trees and landmarks that it had already passed close to. Its right bank is beaded with small lakes, separated from it only by the shifting dunes. These lakes, whenever connected through a small feeder, are like parasites, draining the life-blood of the Tarim.

Winter gradually closed in, and on December 7th, 1899,

the boat was finally held by the ice, at a point which, by a fortunate coincidence, the caravan reached the same day. Soon there arose in the desert a small town of tents and reed shelters for man and beast. It even boasted a market-place to which traders resorted from neighbouring centres.

Undeterred by previous experiences, Hedin resolved upon a third passage of "the most appalling desert on the face of the earth," as he calls the Takla-Makan, in its most easterly part. In 1895, the caravan had been scorched by heat; now it had to endure the extreme rigour of winter. Water was carried in the form of blocks of ice.

The dunes crossed were often 300 to 400 feet high, and ran both north and south, and east and west. The irregular depressions enclosed by the dunes were in places swept clean of the sand, the bare clay beneath affording a firm foothold for the caravan. So that these *bayirs*, as the natives term them, were taken advantage of to the utmost. But after a while they ceased, and the animals had hard work of it on the dunes, sometimes covered with snow, at other times swept by hurricanes. Want of fuel was most keenly felt, with the thermometer showing 30° below zero Fahrenheit; and the expedition would have suffered severely had not the snow covered the sleepers at night. No casualties occurred, however. The Cherchen River was reached, and its course followed north to the Lop lakes, from which point the head-quarters camp was easily reached.

A journey was then made in a northerly direction to survey the Kum River, the dried-up bed of which was an

outlet of the Tarim when it flowed into the old Lop lake. Fragments of earthenware and dead poplar trees were found as silent testimony to the life that had existed a thousand years ago on the banks of the old river, now reduced to a few salt pools. On reaching the basis of Altimish Bulak, or Sixty Springs, Hedin turned southwards, and stumbled upon the ruins of some houses, among which were discovered Chinese coins, axes, and cups. One of his Cossacks, returning for a spade that had been left behind at the last halting-place, discovered even more important traces of old civilisation, which Hedin resolved to examine more closely the next winter.

Before that season arrived he had made a long journey into Northern Tibet, over the Altyn Tagh and Arka Tagh heights. The whole of this region is so elevated that even the valley bottoms stood higher than the summit of Mont Blanc! The great altitude tried men and animals severely; and even more exhausting were the morasses encountered.

"The surface," says Hedin, "consisted of sand and mud, saturated with water like a bog, so that animals sank in it up to their knees. The moisture, becoming thickened by the snow and hail, does not run off the ground, but sinks down into it, making it soft and spongy and fearfully treacherous. Our animals kept falling incessantly, and every time had to be unloaded before they could be got up again. There was not a blade of grass to be found anywhere; and the continuous falls of snow, mingled with hail, caused our camels to suffer so much from the cold that we were forced to give

up every sack and blanket which could be spared to make into rugs to keep them warm."

A truly uninviting region!

On reaching the Dagla Mountains a return north was decided upon; and the party recrossed the mountains on a line parallel to, but 150 miles further west than that by which they came. One of the camels was engulfed in the morasses; bitter cold prevailed; nearly all the horses died; and there was a great scarcity of food. The most interesting object met with was a rock-carving, of a tiger, yak and elephant hunt, evidently of considerable antiquity, as the hunters were depicted using cross-bows.

This journey ended, Hedin prepared for a thorough examination of the old Lop basin and the ruins already discovered in that region, which he reached after making a wide détour to the north-east from his camp on the south side of the Altyn Tagh. On the way the party suffered much from thirst, and a critical situation was only saved by the fresh ice found on the surface of a very salt lake. But for the fact that water parts with its saline particles as it freezes, the disaster of the Takla-Makan might have been repeated, with even more disastrous results.

But these hardships had their reward. For on reaching the ruins most important finds were made—pottery, wood-carvings, images of Buddha, fish-bones, and last, but by no means least, papers and letters covered with Chinese writing. Here at last was a voice from the dead. Professor Himly, of Wiesbaden, an expert in Chinese scripts, has deciphered these documents, which appear to

belong to the third and fourth centuries A.D., and establish the following facts:—

That the buried town was one of considerable importance, and situated on a main route to China proper.

That the name of the district was Lau-lan (a province known to historians), and well peopled.

That the inhabitants were engaged in agriculture, since some of the manuscripts relate to a traffic in corn.

"They throw unsuspected light upon the physical and political geography of the interior of Asia during the first centuries after Christ, and show what prodigious changes have taken place in that part of the world during the last fifteen hundred years."

So then we may picture to ourselves the ancient city of Lau-lan, built on the edge of a great lake, surrounded by smiling fields of corn and pleasant gardens, into which water was conducted from the now vanished channel that formerly led the Tarim into the lake. Through the streets passed couriers on the road through the Gobi Desert, and merchants bringing their wares from far Cathay, and fishermen with their spoil fresh from the river or lake. At one time the town is full of soldiers in arms against the Emperor; at another, the royal troops are exacting the punishment of revolt, for Lau-lan, according to the chronicles, had several stirring political experiences. Then the lake begins to retreat further and further from the walls; the river wilts; the population withdraws before the advance of the desert; and last scene of all, desolation.

In order to get a better understanding of the move-

ments of lakes in this great desert, Hedin set himself the tedious task of taking the levels of the country lying between Lau-lan and the Lop Nor of Przhevalsky. So with the tape and level they walked the 50½ miles in stages of 110 yards at a time. The first day's work revealed a fall of 7½ inches in about six miles; and on reaching the New Lop the calculations proved that there was a total fall of but 7 feet 5½ inches between the point of departure on the north side of the old lake and the surface of Karakoshun. The deepest depression, of 26¼ feet, was about ten miles from Lau-lan.

So then the problem of Lop Nor is solved. Water is delivered by the river Tarim into an almost level region swept by fierce winds. The wind erodes the parts not covered by the water, while the lake is gradually choked with mud and drift sand. As the level of its bottom rises the water spreads, and naturally makes for the depression which has been hollowed out by the wind. After some centuries the same process takes place in reverse order; the old lake has now been scooped out again, and is ready to receive the outflow from the more recent lake. Lop Nor is, in short, "the oscillating pendulum of the Tarim River," swinging from north to south and back, "each oscillation extending over a space of a thousand years or more, yet, measured by the clock of geological time, we know that such periods are of no more account than so many seconds of *our* time."

So that Baron Richthofen was right after all in trusting the accuracy of the Chinese geographers, and Przhevalsky wrong in supposing his Karakoshun to be the lake known

to the ancients—unless, indeed, both theories are harmonised by the wider theory of Prince Kuropatkin, that at one time the *whole* of the Lop Nor Desert was a lake, which, as it dried up, was divided into smaller lakes, which have for centuries been gradually withering away and disappearing. It is interesting to learn that Sven Hedin had practical proof of the soundness of his belief that the Karakoshun will move northwards, for, at the conclusion of his survey, he actually found the lake throwing out new arms in the direction of Lau-lan. "The water," he says, "flowed northwards at a prodigious rate, forming a new lake as it went. Indeed, the water bubbled and boiled along at such a rate, and over such a wide stretch of country, that it was dangerous to encamp anywhere near its margin. . . . The Lake of Karakoshun is slowly creeping northwards, seeking to return to its old bed, where, I am perfectly convinced, it will be found at no great distance of time."

The Lop controversy being now practically settled, Hedin prepared for a long march into Southern Tibet, with the object of penetrating, if possible, to Lhasa. As the "Land of the Lamas" and its capital are given a special chapter later on, it will suffice here to state that the chief difficulty to be overcome was of a political nature, arising from the intense fear in Tibetan breasts of admitting "Russians," as all foreigners are called, within their boundaries. The Tibetans frankly confess that they prefer to keep to themselves and do not wish to be civilised, lest in the process they should lose more than they would gain. And it is just this ring-fence set

round their country by national prejudice that has nerved explorer after explorer to seek an opening—very seldom with success, owing to Tibetan watchfulness.

Sven Hedin had hopes of winning though, and went to work in his usual thorough manner. He equipped the largest caravan that he had ever led into unknown regions. "It comprised thirty Mussulmans, four Cossacks, one Mongolian lama from Karashar, thirty-nine camels, forty-five horses and mules, seventy asses, fifty sheep, and eight dogs." The lama, or priest, was engaged to accompany the expedition as interpreter and tutor in Mongolian; and, though he did not know this at first, to assist in the attempt on Lhasa.

The huge caravan toiled painfully over the ranges already crossed twice the year before, sticking in the terrible morasses, and battered by storms. So severe was the strain that many animals succumbed, especially the poor asses, very few of which ever reached home again. "Once over the pass of Arka Tagh, we pushed on south through an absolutely unknown region, where we crossed innumerable mountain chains, over passes of stupendous height, skirted the shores of innumerable lakes, and forded innumerable rivers, but almost the whole time through a barren country, totally devoid of grass, so that every day the caravan animals grew more emaciated. After some weeks of this, Hedin weeded out the worst animals, and leaving them in the care of a Cossack, pushed on as fast as possible to the south. Some Tibetan hunters whom he met, being suspicious of his purpose, had already warned the authorities to be on the

look-out; so that the explorer determined to burn still more of his boats, and set out for Lhasa accompanied only by the lama—who at first was terribly depressed at the prospect of possible captivity and death—and a Cossack named Shagdur. All visible clothing and utensils were of strict Mongolian pattern. Hedin had his head shaved quite bare, and his face darkened with grease to a brown hue.

The little party had a truly anxious time of it, especially in the night-watches, when horse-thieves hung round their camp ready to take advantage of any remissness. Rainstorm after rainstorm drenched them; and they narrowly escaped several duckings in the swollen mountain torrents which had to be crossed. On the eighth day they were surrounded by a body of Tibetan soldiers, who bade them at once halt, threatening death if they attempted to approach nearer to Lhasa. This motley band seemed to spring up out of the desert, as it were; and their numbers precluded an advance. At the same time, the officers treated Hedin with kindness and courtesy, only demanding that he should retrace his steps. The Dalai Lama, or chief lama of Tibet, had given orders that the intruders should be provided with all necessaries, without any payment whatsoever. Consequently Hedin and his two companions fared luxuriously. There soon appeared on the scene one Kamba Bombo, governor of the province, who visited Hedin's tent, and made himself most agreeable, though he was iron as regarded the Swede's withdrawal. The latter, therefore, taking what comfort he could from the fact that he had

done his best to reach the "Holy City," had to retire, and was "seen off the premises" by a squadron of the Tibetan cavalry.

But when he rejoined his caravan, he determined to make another attempt; which was equally futile. Scarcely had the march begun when the soldiers were round him again, begging him not to proceed further. Two lamas arrived from Lhasa, with 500 horsemen. As before, no violence was offered. Yet a watch was kept over their every movement all the way to the frontier of Ladak, on the west of Tibet.

Passing through Ladak and Cashmir, Hedin made a short visit to India, where he was received with great distinction by the Viceroy, Lord Curzon. After a short sojourn in Calcutta, he retraced his steps to Leh; and crossed the Himalayas to Kashgar. All that then remained was to dismiss the servants who, especially his Cossacks, had served him so faithfully through his wanderings. One of the most striking features of Hedin's travels is the good-fellowship existing between him and his men. It is also interesting to note that the Cossacks speedily learnt to make scientific observations with an accuracy which is astonishing, in view of the fact that none of them had received any education beyond that of the average Russian soldier. We are glad to read that all four were, for their loyalty and courage, rewarded with gold medals by both his Majesty the King of Sweden and his Imperial Majesty the Czar. Happy is Russia if Shagdur and Sirkin are a fair type of her Cossacks!

On December 8th, 1902, Dr. Hedin gave a lecture

before the Royal Geographical Society on the journeys briefly reviewed in this chapter. The opinion of experts as to the value of his work is expressed in the following words of the President uttered on that occasion: "During that time (*i.e.* the last four years) he has done an amount of work as a traveller by which he has equalled himself—we cannot say more than that—in his former expedition, for which he received the Royal gold medal of our Society. But I consider that he has done much more than that. He has shown himself to be a scientific geographer of the very highest merit—as a linguist, an observer, and an historian. Our Council this afternoon has considered the very great merits of Dr. Sven Hedin; and has decided to award him at once our Victoria medal instituted for the highest record in geographical research."

NOTE.—All quotations in this chapter have been made, with permission, from *The Royal Geographical Journal.*

CHAPTER III

SURVEYING IN MID-ASIA

IF you wish to measure the area of your back garden you have only to find its length and its breadth and multiply them together, should its shape be rectangular. This is surveying in its very simplest form.

But when a large property of irregular shape has to be reduced to acres, poles, and yards, the calculations necessarily become more complicated. Each field is broken up into a series of triangles, the area of which is easily found, and any irregularity of outline is allowed for by measuring "offsets" perpendicularly to the sides of the triangles nearest the boundary and making a number of subsidiary calculations. When, again, the operation is extended to the survey of a country other difficulties appear. The use of a measuring-chain is practically precluded by the time that it would take to cover many miles a few yards at a time; and also by the variations of the length of the chain itself in different temperatures; to say nothing of inaccuracies in the position of the chain from time to time.

The surveying engineer, therefore, conducts his operations without the use of a measure at all, except at the

very start, when he is making a "base-line." This once measured as accurately as is possible, he can pack up his steel chains or tapes and proceed, employing in their place an instrument called a theodolite, the function of which is to calculate the exact size of the angle between two lines drawn from any one point to any other two points.

Let us suppose that his base-line, AB, is 100 yards long, and that he wishes to determine the size of a triangle ABC, C being a point in the distance. First of all he must find the size of the angles ABC, BAC. Given them and the already known length of AB, he can by trigonometry easily decide the area of the triangle.

He begins by planting the theodolite at A. The instrument may be briefly described as a telescope attached to a small circular table which revolves on a second table mounted on a tripod. The edges of the tables are divided into degrees, minutes, and seconds. From the centre of the lower table hangs a line carrying a pointed plumb-bob at its lower extremity. The theodolite is moved about until this hangs exactly over A, the tables are levelled by means of spirit-levels and adjusting screws, and the telescope is turned round till its centre line is pointing quite straight for a pole planted at B. The surveyor then notes where the mark 0 on the upper table is as regards the marks of the lower table, and turns the telescope to a pole planted at C. Once more he looks for his 0 mark, and observes that instead of being over, say, 56° of the lower table, it is at 98°. He therefore knows that the angle BAC is one of 42°

He now removes his instrument to B, and after a repetition of the process discovers that the angle ABC is 30° : and by deducting the sum of ABC, BAC = 72° from 180, he has 108° as the size of the angle BCA.

Now he is content: for he can tell you not only the area of the triangle ABC, but also the length of its sides AC, BC. Using these in turn as base-lines, he measures fresh triangles ACD, BCE, and from them others, until his operations have extended far in all directions from the original base. After surveying some thousands of square miles in this manner he tests his work by selecting a second base-line and seeing whether its length, as measured by delicate chains and standard tapes, is the same as the length that it *ought* to have according to his trigonometrical calculations. If there is a serious discrepancy, he knows that "something has gone wrong," and has to repeat his work until the mistake is discovered.

In the survey of the British Isles the two principal base-lines taken were 360 miles apart, the one being in Salisbury Plain, the other on the shores of Loch Foyle. From these a network of triangles were driven northward to the Shetlands, eastwards to Lowestoft, westwards to Valentia Island, across mountain, sea, and plain ; and then, to test the accuracy of the work, the lengths of the base-lines were computed through the series of triangles spanning the 360 miles between them, and compared with actual measurements. It is true, but almost incredible, that the difference was but *five inches!* When you are told that the inaccuracy of a tiny fraction of a degree in any one of the angles of the hundreds of triangles

observed would have made an ultimate error of many yards, you will be able to understand the infinite care and patience exercised by the surveyors.

The triangles of the English survey have been extended to, and connected with, those of France, Russia, and other countries as far east as Siberia, and as far south as Algeria; and the Russian survey is rapidly being "tied in" with that of India.

This brings us to the vast undertaking known as The Great Trigonometrical Survey of India. It consists of "chains of triangles which extend from Cape Comorin to the borders of Tibet, and from Afghanistan to Burma," and was begun in 1800 by Colonel Lambton, "the Father of the Indian Survey," a man possessing the indomitable ardour and perseverance of which true heroes are made. The difficulties to be overcome were enormous: first, the deadly climate of the jungles and swamps; secondly, the hostility of the natives; thirdly, the absence of convenient landmarks at which to direct his theodolite. He was at once the explorer of hitherto unknown regions, and the surveyor of them; and had he not won undying fame by his surveys, he would still rank high among the pioneers of India. After twenty-three years of exposure and hardship he died in the wilds of Central India, a martyr in the cause of science. His own words will best testify to the spirit in which he performed his duties.

"In the twenty years devoted to this work," he writes, "I have scarcely experienced a heavy hour; such is the case when the human mind is absorbed in pursuits that call its powers into action. A man so engaged, his time

passes on insensibly, and if his efforts are successful his reward is great, and a retrospect of his labours will afford him endless gratification."

Lambton determined to survey India from coast to coast, and on April 10th, 1802, began operations by measuring a base-line 7½ miles long at St. Thomas' Mount, Madras. The base was measured with a chain, corrections being made for variations of temperatures. This occupied forty-two days; but the utmost accuracy was needed, seeing that here was to be the starting-point of the Great Indian Survey. He drove his triangles westwards to Bangalore—160 miles—and then verified his base-line by observations taken back. The actual and calculated lengths of the line differed by only 3¾ inches!

Two methods of surveying in difficult and almost unexplored country are used. The one is known as the "network" system, which consists of continuously building out more triangles, in *all* directions, from the sides of those already made. The other is called the "gridiron." Long lines of triangles are calculated in parallel lines north and south, and east and west, until a country has been regularly "gridded" with lines like those of a gigantic window-sash. Having once found the distance apart and area of the frames of his window, the surveyor can at his leisure estimate the size of the "panes." Colonel Lambton began with the "network system"; but gave it up for the "gridiron," which was continued by his successor, Colonel Everest. This officer, whose name has been given to the highest mountain peak in the world,

conducted the "Great Arc Series" of triangles, reaching from Cape Comorin in the south to the Himalayas on the north—1,540 miles—supposed to be the longest arc ever measured on the earth's surface. The accuracy of the survey was simply marvellous. Thus, on one stretch of 400 miles an error of only 7·2 inches could be detected; while in another case the actual and calculated length of a 7-miles base differed by only a *quarter of an inch*, though the triangles to verify it had been carried 480 miles!

North of Sirong, and in Bhopal, the country was unhealthy, dusty, covered with trees, and yet flat. So that the surveyors had to build seventeen towers fifty feet high, on which to plant their staffs. They were so far apart that special signals had to be invented for both day and night work.

There are ten trigonometrical bases used in the Indian survey. The height of these above sea-level has to be carefully determined, by a process of levelling similar to that used by Sven Hedin in the Lop Nor Desert (*i.e.* with a spirit-level), as well as by trigonometrical calculations from *vertical* triangles. At Attock, 700 miles from the sea, the difference between the angle and spirit-level measurements was only 3 ft. 2 in. The line was afterwards carried down the Ganges Valley to the sea at Calcutta, the distance along the line levelled being 2,200 miles.

The survey has been pushed far up into and, in some parts, beyond the Himalayas. Signal stations have been set up on lofty, snow-clad peaks, never before trodden by

the foot of man. The difficulties that await the surveyors in the heart of the Himalayas and their offshoots will be the better understood after a perusal of the following pages, which relate to a typical piece of work done in the rugged uplands of Tibet by Captain H. H. P. Deasy, late of the 16th Lancers. This officer, who toiled not for the sake of reward, but merely for the love of the thing and a patriotic desire to extend the triangles of the Indian survey, is one of those men of whom any country might be proud. His achievements have not been proclaimed with any flourish of trumpets; but, none the less, they are such as to show in him the spirit that inspired Lambton and Everest.

During the spring of 1896 Captain Deasy left Leh, in Ladak, accompanied by a well-equipped caravan, an Englishman, Mr. Arnold Pike, and an Indian sub-surveyor, S. D., nicknamed "Dan Leno." His object was "to survey as accurately as possible as much of the unexplored parts of Tibet as circumstances would permit."

The route proved extremely difficult, on account of snow and precipitous slopes; and the process of surveying was rendered unnecessarily tedious by the men despatched to erect observation pillars on mountain-tops shirking their work and setting them up on the slopes instead. The error could not be detected until Captain Deasy got close to the pillars, and then, of course, much of the calculation had to be done over again.

At night, when observations of the stars were made, the bitter wind kept blowing out the candle used to illuminate the sighting-wires of the theodolite, wasting it

to such an extent that for economy's sake the surveyor had often to go to bed in the dark.

After a few days' travel, thousands of antelopes were seen grazing on an open, grassy plain high up in the mountains. These graceful little animals showed by their unsuspicious behaviour that they had had small acquaintance with human beings. Yet the district was not the abode of innocence; for a band of Chukpas, or Tibetan robbers, raided the camp, bound the two men left in charge, looted the baggage, and made off with eleven mules. A council of war having been held, Mr. Pike and two other men went in pursuit, and recovered the baggage from a party of robbers whom they surprised; but they had to return *minus* the mules. As a consequence it was necessary to burn certain camp beds and chairs, and—most grievous loss of all—the collapsible Berthon boat, for which there was now no transport.

Captain Deasy soon had a taste of the anti-foreign attitude of the Tibetans. On trying to purchase a yak from some nomads, their chief appeared and forbade a sale, alleging that the chief official of Lhasa, being a god, would know that he had helped a "foreign-devil" to enter Tibet: and the penalty was severe. In stolidity these natives can compare with the Chinaman, who, when shown a railway train for the first time, merely grunted and turned away. "Nothing," writes the explorer, "could surprise them. Arms were of importance to them, and they had never before seen a magazine carbine, but our carbines excited no interest nor curiosity. A fine blue-rock pigeon having alighted to rest and drink

at a spot within range, Pike took the opportunity of showing the precision of his weapon, and shot the pigeon, but not one of the Tibetans evinced the slightest concern in any way." At Gerge they also showed an equal amount of simplicity and suspicion. Rumour had preceded the caravan to the effect that a European officer and 2,000 soldiers were approaching. Consequently, when but a few men turned up, the Tibetans treated them somewhat unpleasantly, until the guide assured a Gergite in confidence that they had better look out for themselves, as a great number of soldiers were hidden away in the baggage. The result was a more respectful attitude towards the Europeans!

At an elevation of over 16,000 feet above sea-level the Ladakis experienced severe headaches; and smokers found great difficulty in keeping their pipes alight, as in a rarefied atmosphere greater suction is required. Soon there appeared on the scene a few Tibetans with the news that a band of robbers had been heard of in the neighbourhood. They proposed that these rascals should be at once attacked—by Deasy's men—while they remained behind to guard the camp. In return for this duty they should receive—about nine-tenths of all plunder taken! Needless to say, this generous offer was not accepted.

As the winter drew in the cold became such that "soon after sunset it was impossible to write with ink. The liquid froze in the bottle unless it was held in the hand, and in that case the drop on the pen-nib became solid before it could be transferred to paper." The poor animals suffered greatly. How many have died during

the night? was the first question in the morning. And the cordite in the rifle cartridges lost its power to such an extent that bullets dropped a few yards from the muzzle. Of the sixty-five animals that left Leh only six, and they mere bags of bones, crawled back into Ladak.

On September 14th, 1897, Captain Deasy set out on a second journey, from Srinagar, the capital of Kashmir. The caravan *bashi*, or leader, one Abdul Khalik, did his best to foment discontent among his following, and had finally to be thrown into prison. In contrast to him was Abdul Karim, Captain Deasy's orderly, whose fidelity remained unshaken under all circumstances. As soon as Chinese Turkestan was entered, the natives, acting on orders, endeavoured to deter the advance of the party; and on many occasions human opposition proved much more formidable than the worst obstacles of nature.

The particular field of this survey was the upper parts of the Yarkand River, from the west end of the Raskam valley to the town of Yarkand—already mentioned in Dr. Hedin's travels. This valley, and indeed the whole Pamir district through which Deasy conducted his triangulations, is of a most inhospitable character, affording but a perilous foothold for man and beast, not to mention the stands of the surveying instruments.

At Yarkand the usual civilities were exchanged between the Englishman and the Chinese Governor. Celestial officials are great sticklers on all points of etiquette, and expect a visitor to call on them without delay on his arrival in a town. He sends in advance his card, a large sheet of red paper; and dons the most suitable apparel

that he can command. When "the presence" is entered, he receives the cup of tea which is the Chinese idea of a "drink," and is fed with sweetmeats by his host. A tedious interview of this kind ended, Captain Deasy was proceeding homewards at a leisurely pace when the news reached him that his late host was already on his way to return the call! He had therefore to gallop hard to be able to welcome his visitor.

Few of us would care to participate in a Chinese dinner, especially when served in the open, with the thermometer showing many degrees of frost. "The dishes, as they were served one after another, seemed interminable. There were more than thirty in all, some of them very good, but others were bad and even repulsive. . . . Some of the usages at table were, to say the least, disagreeable to think of. If a guest had not emptied his cup when the time came for replenishing it, its contents (whatever might have been left) were poured back into the spirit-kettle, and then it was refilled. . . . The guests were not left absolutely unprovided for with respect to such comforts (*i.e.* napkins). An attendant handed round to them successively, in due rotation, a greasy, steaming cloth, wherewith each wiped his hands and mouth. When my turn came I made a strenuous effort to decline its use, but a look of calm surprise from the Chow-Kuan, backed by a severe frown from Raja, quite cowed me, and I meekly wiped my hands and mouth with the disgusting rag, even as the others had done."

From the dissipations of Yarkand he turned back into the fastnesses of Pamir, but illness soon compelled a

Captain Deasy's expedition advancing along the ice fringing the upper reaches of the Yarkand River. An ice-floe once swept down the stream and the party had only just time to regain the bank before the fringe was carried bodily away.

return to the town. The Yarkand valley being almost impenetrable in summer, Captain Deasy filled in the time till the next winter with an excursion across the Takla-Makan Desert in search of buried cities. The guide whom he took proved to be a fraud, quite ignorant of professed sites, and a great rascal in other respects. As punishment for spoiling the journey the Amban of Khotan decorated him with the *cangue*, a large board pierced centrally with a hole in which the neck is fixed. These cangues are often so large that the unhappy wearer cannot get his hand to his mouth, and is dependent on the charity of passers-by for his food. From Khotan Deasy pushed eastwards to the mountains of N. Tibet, where, in spite of Chinese opposition, he managed to do some very useful surveying. The caravan men mutinied, and were reduced to order only by an application of physical force to their ringleaders. Whether they suffered from homesickness or not, they were very anxious to return to the bosom of their families, regardless of contracts. As soon as "time was up" the men from Kiria set off home, leaving one of their number with the expedition. This man had a brother among the home-goers; and the separation was made with a truly Eastern display of emotion. "After shedding copious tears, the two men separated reluctantly and slowly. Each had his arms crossed, and, walking backwards, bowed again and again with dignity to his sorrowing brother. The performance was not mere acting, and it would have been pathetic had it not exceeded the requirements of the occasion, the parting being only for a few weeks."

Want of space forbids us to linger on the Tibetan Mountains, so we will return at once to Yarkand, from which, on November 3rd, 1897, Captain Deasy determined to make a fourth attempt upon the Yarkand valley. The river was not yet frozen over, and had to be forded—a very chilly operation. Several terrible passes had to be negotiated, worst among which was that of Pilipert. A slight fall of fresh snow balled in the animals' feet to such an extent as to make it almost impossible for them to stand on the track, only a few inches wide. Hacking the frozen mixture out of the hoofs was, on an eight-inch ledge, very perilous work. The yaks, though marvellously surefooted, were hard put to it on this declivity. The men had to hang on to their tails to prevent them turning head over heels down the slope. So intense was the cold that the candles used in the hypsometer—an instrument for ascertaining altitude from the temperature at which water boils—froze hard, and had to be thawed by an extravagant consumption of matches. The Chinese, and not unnaturally, were quite unable to understand why a European should want to stand about on wind-swept mountain-sides with queer-looking things on a tripod. It was useless to expatiate on the Royal Geographical Society, the love of topography, travel, sport, and adventure, when the Bey or Amban had made up his mind that behind it all was the secret hand of the Indian Government. Amid the general distrust of England prevailing in the Pamirs, it is refreshing to read of the attitude of the people of Sanglash—a small village in the Yarkand valley. Captain Deasy, when in straits

for money, was offered a loan of twenty-seven rupees by a villager. On expressing surprise at this offer to a total stranger, he received the reply that "he had entire faith in the British sahibs, and was perfectly certain that he would be repaid at Yarkand." As no European except the Russian Grombchefsky had ever visited Sanglash previously, this declaration of the simple villager is flattering to the Englishman.

The Kirghiz seem to share the hardiness of their yaks, ponies, and dogs. Though gloveless, and very poorly clad, they suffered very little inconvenience from a wind that shrivelled the stranger in his warm wraps and furs. Superstition affects them more than cold. On one occasion Deasy sent one of his party back for supplies, and told off a native boy to guide him through a certain pass. The boy was to sleep on the further side of the pass and to return the following day. Yet next morning early he was back in camp, having re-crossed the pass in the dark with the thermometer at 20° below zero. Why had he come back so quickly, running the risk of being frozen to death? Because, had he waited, he would have had to follow after the caravan through a place haunted by an evil spirit; and he preferred the dangers of cold to the terrors of ghostly enemies!

On Christmas Day, 1898, the cook prepared a pudding to celebrate the occasion. Wherever he be, in tropical heat or arctic cold, the Englishman is supposed to have at least a sentimental attachment to the national Christmas

dainty. As a matter of fact, Captain Deasy was ready to forego the delicacy, possibly from forebodings of what it might be. But the cook did not mean to let the "burradin" (holy day) pass unmarked. "Plum-pudding was prepared. The main or only ingredients were the shakings of the biscuit-bag, ghee, sugar, and a few currants. The process of manufacture was simple: the ingredients were stirred together, heated over a fire, emptied into a pudding-dish, decorated with a few bread-crumbs, slightly baked, and then served." From his own account, we may judge that the gallant officer felt more gratitude towards the cook for his well-meant attempt than avidity for the result of his labours.

Though nature and man were adverse, the survey proceeded steadily. Bit by bit prominent peaks were aligned on the plane-table, perched in slippery and dangerous places. Altitudes were ascertained; longtitude and latitude calculated; hitherto unsurveyed regions gradually "tied in" with the geodetic survey of India. One cannot but regard with admiration a man who persists in such work as this; feeling enthusiasm even when his hands are numbed with cold and in danger of frost-bite, when helpers are stupid or indifferent, and when the very pillars raised for surveying purposes are regarded by the natives with suspicion. Here is a short picture of actual experiences:—

"The steep slope was slippery with fresh-fallen snow, and by the time we had reached the pillar and had

fixed the theodolite in position, a strong wind had arisen which, with the temperature several degrees below zero, made observations difficult. A sudden gust would impel me against the eye-piece, or blow my coat-tail against the stand of the theodolite, and, unless I used a piece of paper or cardboard to screen my face from the instrument when reading the vernier, my beard or moustache invariably got frozen to the metal."

In truth, "the work of a surveyor at an altitude of 14,700 feet is not in itself attractive. It requires some resolution when the thermometer is below zero F., to bear exposure during the greater part of the day to a freezing wind, while on the moustache and beard icicles form, which can only be got rid of by melting before a smoky fire of dung."

Besides the difficulties of actual observation were those of moving from place to place. When following a river the travellers were sometimes driven by the precipitous slopes on either side to descend on to the ice fringing the banks (see illustration). In the Tashkurghan valley the caravan was thus proceeding when, to his horror, the leader espied a succession of floes moving down the river at a rapid pace. Should they encounter the ice-fringe carrying the men and ponies, the expedition was doomed. Just as the last pony had gained the bank the floe crashed into the fringe, sweeping away what but a few moments before had borne a living burden. It was indeed a narrow escape.

Undeterred by such adventures, Captain Deasy com-

pleted his survey of the Upper Yarkand, and again crossed the Takla-Makan towards Tibet. Here sickness and underhand opposition compelled him to relinquish the task of mapping the north parts of Tibet, and of verifying his previous surveys.

Like other travellers in Chinese Turkestan, he noticed the open corruption of the administration. The officials being wretchedly, if at all, remunerated, made their living out of the misuse of their positions. Thus the governor of the small and poor oasis of Kiria managed in fourteen *months* to save over £7,000; and the Chow-Kuans of more important places enrich themselves in proportion. Consequently there is actual bidding for these posts, which a candidate who is above bribing the electors cannot hope to fill. With each grade of official squeezing inferior grades the lot of the taxpayers is not a happy one; though in return for the fleecing they are in other ways granted a considerable amount of licence. Rich misdoers are fined, the poor beaten. Capital punishment is rarely inflicted, as a murder means that twelve yambos (about £120) must be paid by the Chow-Kuan in whose district it is committed. No wonder then that in one case a man who had murdered his *own father* escaped scot-free on the ground that he was drunk when he did the deed.

Old offenders are compelled to carry about with them a heavy bar of iron chained to a leg and the neck. For very serious crimes they are suspended by the neck in cages of such a height that their toes only touch the ground to relieve the pressure on the chin. As capital

punishment, they are left thus to die after days of lingering torture.

Such were the people in whose country Captain Deasy carried on his work; a people plunged in ignorance and prejudice. Some day the hand of Russia will be heavily felt among them.

NOTE.—The author has to thank Mr. Fisher Unwin for permission to quote from Captain H. H. P. Deasy's *In Tibet and Chinese Turkestan*.

CHAPTER IV

LHASA VISITED

THE LAND OF MYSTERY

THE Himalayas are remarkable for their altitude; and even more extraordinary are the climatic extremes between which they form a boundary. To the south is India, a country synonymous for heat; to the north, Tibet, the very mention of which conjures up visions of biting winds, hail, snow, and ice.

Of all the countries in the world few are less inviting than the inhospitable tablelands of Tibet. Rising as they do in places to an average elevation of 15,000 feet above sea-level, the natural cold of their great altitude is aggravated by their exposure to the icy blasts sweeping from the north over the sandy wastes of Central Asia. As a consequence, though Tibet lies between the latitude of Naples and Cairo, its climate is almost arctic in its severity; while the great mountains intervening between it and the sea rob all southerly winds of their moisture, so that during the short summers a great lack of water is experienced at a distance from the rivers and lakes which are found in the east, west, and south of the country. Wood does not rot in Tibet; it merely

perishes of brittleness; and even flesh will not putrefy where it is exposed to the winds.

Over so vast an area great variations in climate may be expected; and travellers have noticed that though the western regions are visited by very little rain, the central lake district, extending from the Kuen-lun range to the Himalayas, is plentifully moistened by the thunderstorms prevailing in the three summer months. Also, while snow may be lying on the Tsaidam passes, a man may pant in the heat of the plateau south of the Kuen-lun, though at an elevation of 16,000 feet. Speaking generally, however, cold and drought are the main characteristics of Tibet.

In spite of its repellent features this country has, for several reasons, been attractive to the inhabitants of more favoured lands. Among the hundreds of millions of Buddhists living to the north, east, and south, it is a religious centre, since Lhasa, its capital, contains, in addition to several notable temples, the residence of the high-priest of the cult, the Dalai Lama. A visit to Lhasa is, therefore, in the eyes of the pious Buddhist a work of great merit; and one undertaken in the same spirit as that which drives the strict Mussulman to Mecca. As a pilgrimage usually entails the payment of certain fees to the priesthood of the religion, the lamas or clergy of Tibet greatly encourage such journeys on the part of their co-religionists. But they evince an equal amount of hostility towards anyone who comes into their country from motives of mere curiosity, under which head they

include all desire for scientific exploration. This policy of isolation is an inheritance from the conquest of the country by the Chinese, which commenced in the thirteenth century, and may be said to have been completed in or about the year 1720, when the whole of Tibet became a tributary dependency of the Celestial Empire. The Ambans, or Chinese Governors, inculcate in all classes the same aversion to outsiders which has made China Proper a risky home for the "foreign devil," though, as in China, the upper classes, from motives of self-interest, are much more bigoted than the poorer population. Dr. Hedin was told by the Tibetan authorities that all they desired was to be let alone. Of European civilisation they knew little beyond the fact that it would have evil consequences to the country if once introduced. "The jealousy of the Tibetans towards Europeans is supposed to date from 1791–92, when English soldiers were believed to have taken part in the war which followed the incursion of the Gorkhas into Tibet; and as the English Government, then in its infancy, took no steps to cultivate the friendship of the Tibetans, that feeling took a lasting hold on their minds."* This is the opinion of Sarat Chandra Das, who also mentions a belief universally held in Tibet that within 200 years the whole world will succumb to the power of the Russians and English, thanks to their more potent gods and intellects.

In 1840 there was war between Tibet and Nepal. On this occasion the Tibetan gods did what was expected of them; the Nepalese were driven out and compelled

* *The Narrative of a Journey to Lhasa*, by Sarat Chandra Das.

to pay tribute. Furthermore, the trade routes through the Himalayas were closed, lest the opening up of commerce with India should prejudice that already established with China, out of which lamas, nobles, and Chinese officials make a remarkably good thing. The staple trade is in tea, as dear to the Tibetan as to the Russian. Tea of six qualities is imported; the first, "extra superfine," for the Dalai Lama and a few other privileged individuals. The other five standards steadily fall to a substance composed chiefly of the wooden parts of the tea-plant, mingled with just enough tea-leaves to justify its name. This is known as Jong-ma, and fetches three shillings in Lhasa, to which place it is carried on the backs of sturdy porters, whose strength or skill is equal to a load of 300 lbs. For transportation the tea is done up into packets of about 22 lbs. each, which "are placed evenly one above the other, the upper ones projecting so as to come slightly over the porter's head; they are held tightly together by little bamboo stakes and coir ropes. A sling, also made of coir, holds the load on his back, and a string is fastened to the top of it, by means of which he balances it. A short, strong, wooden crutch is used by all porters to assist them along the steep mountain roads, and to put under their loads when they want to rest without taking them off their backs. Women frequently carry seven or eight packages of tea, and I have seen children of six or seven with a package, or a package and a half, trudge along behind their parents."*

* W. W. Rockhill, *The Land of the Lamas.*

The Government of Tibet is dual. On the political side are the Ambans, commanders of the army, and the supreme authorities on all points affecting the suzerainty of China. The salaries of the Ambans, together with the expense of maintaining the army, come out of taxes levied on the Tibetans, who entertain no great fondness for their temporal lords and masters.

Internal affairs and spiritual matters are nominally, at least, in the hands of the Dalai Lama and a council of five—four noble laymen and one lama. Until a Dalai lama reaches his majority—eighteen years—he is represented by a Regent, himself chosen from among the heads of the four greatest monasteries. Spiritually, the Dalai Lama is considered the equal of the Panchen Rinpoche, who lives in the great convent of Tashilunpo, near the town of Shigatze on the Brahmapootra, west of Lhasa. But the meanings of their respective titles, "The Priest as wide as the Ocean" and "the right reverend great teacher jewel," show the actual superiority of the Dalai, who is practically the ruler of the richest part of Tibet.

One of the main articles in the Lamaist creed is the belief in reincarnation—the reappearance of a soul in bodily form time after time. Closely allied with it is the belief in transmigration, whereby a human soul may be condemned by the gods to put on for one or more lifetimes the form of a lower animal. When a lama dies, it is taken for granted that he will reappear in human guise by virtue of his holiness; and it becomes the duty of his surviving fellows to determine in which child he

is reincarnated—unless on his deathbed he has left convenient hints as to the family which he intends to honour. In the case of so great a person as the Dalai or Panchen a physical sign—the lack of a kneecap, etc. —betrays the reborn saint, and if several children all answer to the desired description a solemn decision must be made by the casting of lots. The names are sent in to the Regent for examination, and written on pieces of paper, which are enclosed in balls of paste. These are placed in a golden jar and presented for a week on the altar of the chief temple of Lhasa. The jar is on the eighth day twirled round till a name has come out three times, the possessor of which is brought to Lhasa and subjected to certain tests. "The reborn arch-saint, usually a boy of five years old, is questioned as to his previous career; books, garments, and other articles used and not used by the deceased are placed before him to point out those which belonged to him in his former life. But however satisfactory his answers be they do not yet suffice. Various little bells required at the daily devotions of the lama are put before the boy to select that which he did use when he was the Dalai Lama or Panchen. 'But where is my own favourite bell?' the child exclaims, after having searched in vain; and this question is perfectly justified, for to test the veracity of the reborn saint this particular bell had been withheld from him. Now, however, there can be no doubt as to the Dalai Lama or Panchen being bodily before them; the believers fall on their knees, and the lamas who successfully performed all these frauds join them in

announcing the momentous fact." (Chambers's *Encyclopædia.*)

So far so good. But the Emperor of China has to sanction the election; and if the child happens to be a member of a loyal family assent is given. If otherwise, some irregularity will be discovered to prove the choice invalid. So that here we have a close parallel to the *congé d'élire* given to our own clergy when a bishopric falls vacant: they may choose—him whom the sovereign has already chosen.

In addition to the two archbishops, or popes, as we may regard them, is a great host of reincarnated lamas, and lamas who cannot claim a previous existence but who hope by meritorious works to attain a pitch of holiness which will fit them for future rebirths. These are collected into huge convents containing as many as 4,000 inmates. "Chinese writers of authority," says Mr. W. W. Rockhill, "have stated that for every family in Tibet there are three lamas, and I do not believe that this is an exaggerated estimate." Their command of nearly all the wealth of the land, and the hold that they have over the community in all matters connected with marriage and burial, makes them everywhere the masters—under the Chinese—of the country. Like the great ecclesiastics of the Middle Ages, they are by no means lovers of peace when anything is to be gained by war. Exchanging their kilts for trousers, and their praying-wheels for lance and bow, they mount their steeds and go out to fight, taking their dependants with them. In the actions which the British Mission to Lhasa has fought

with the Tibetan forces the lamas have been well to the front, encouraging by example and compelling by threats.

Very many attempts, most of them unsuccessful, have been made by Europeans, or outsiders in the service of Europeans, to penetrate to Lhasa. As early as 1328 a friar is said to have reached the "Holy City" from China. Three hundred and fifty years later Fathers D'Orville and Grueber were equally successful; and between 1700 and 1750 A.D. several other Capuchins entered the capital from the Indian frontier. The only Englishman who has hitherto got through is Thomas Manning (1811), and his stay was brief. The last Europeans to enter Lhasa were the French missionaries Huc and Gabet (1844). Since that date many explorers have tried to add their names to the list of the favoured few, but with the exception of three Indian pundits, Nain Singh, Kischen Singh, and Sarat Chandra Das, they have shared the fate of Dr. Hedin, and been turned back by the ever-watchful subjects of the Dalai Lama. These men were the emissaries of the Indian Government, their duty being to survey with all possible accuracy such parts of Tibet as they should traverse. The most extensive results came from the expeditions of Kischen Singh, officially known as A. —K., who in four years crossed Tibet from north to south, and from east to west, and among other things managed to draw out a detailed plan of Lhasa. He was obliged, when in the company of natives, to play the part of a pedlar, and to conceal his scientific instruments in a roll of cloth. His survey is considered to be very accurate.

A year or two after his return to India, Sarat Chandra

Das, a native of Chittagong, in Eastern Bengal, made the first of two interesting journeys into Tibet. While head-master of a Darjeeling school he formed a friendship with a lama, Ugyen-gyatso, who in 1878 obtained permission from the chief minister of the Panchen Rinpoche to take Chandra Das with him into Tibet, where the pundit's name was entered as a theological student in the Grand Monastery of Tashilunpo.

Setting out in June, 1879, accompanied by the lama, he reached Tashilunpo safely, and remained there six months to study the fine collection of Sanscrit and Tibetan books in the convent library. On the outward and homeward journeys he explored the hitherto unknown country to the north and north-east of Kunchinjinga; and the data thus obtained have proved of great value. He fortunately found in "the Minister," as he calls him in his narrative, a man whose ideas were more enlightened than those of brother lamas, and who was anxious to make acquaintance with the civilisation against which his countrymen set their faces. Chandra Das was invited by him to make a second visit to Tashilunpo.

Accordingly, in November, 1881, he again set his face towards Tibet. Ugyen-gyatso went with him as his secretary and collector. In his *Narrative of a Journey to Lhasa*, Chandra Das gives a full description of what he did and what he saw. So interesting is the story that the reader will be glad to learn some of its most graphic details.

For fourteen months Das went among the Tibetans, noting their peculiar customs, visiting their chief towns—

including Lhasa itself—monasteries and temples, and gathering all kinds of useful information.

At Tashilunpo he gained an insight into the methods of Chinese government. The junior Amban was on the yearly tour of inspection of the guards of the Nepal-Tibet frontier. According to law the people through whose villages he passed were supposed to furnish him with a daily salary of about £35. Arriving at Shigatse, the town nearest to Tashilunpo, he suddenly demanded £54 a day, which was refused by the enraged populace. The chief magistrates were at once caught and flogged, an act that drew on the Amban volleys of stones, from some of which he received severe wounds. Troops appeared on the scene, arrested the ringleaders, and sent post-haste for the senior Amban. The latter soon arrived with his suite to judge and punish the refractory magistrates. The village headmen received 400 strokes of the bamboo and two months' imprisonment; while the two mayors of Shigatse, in addition to degradation, had the flesh stripped off their hands. No wonder that the Chinese are somewhat unpopular among the Tibetans!

One day Das observed a prominent citizen, Lagpa-tsering, distributing alms of one anna each to a crowd of cripples and beggars. This man had been a silversmith, and by industry amassed great riches. To gain merit he made princely gifts to the Tashilunpo monastery. But unfortunately he overdid the business by offering a very saintly lama a sum of about £120, in addition to many valuable articles, in the hope that his generosity would have an earthly reward. The saint, so far from being

grateful, refused the present, and said, "In a previous existence you were a great sinner, and in your next you will be a crocodile." Horrified by the terrible prospect, Lagpa implored pardon for his sin, asking how he could make atonement. "From henceforth," replied the holy man, "on every new moon you must give alms to the poor and helpless till you die. This will save you from becoming a crocodile, and also gain you immense wealth." Lagpa took him at his word; and for all we know may still be distributing a percentage of his income. It is satisfactory to learn that the action of the lama had a good effect on the commercial morality of the place; though the merit of the almsgiving is in our eyes somewhat discounted by the fact that Lagpa was distinctly advised to throw a sprat to catch a whale—the object with which he originally approached the lama.

The candidate for lamaism, when admitted to a convent, gains merit by a present of sixpence a head to his future companions, who may count 4,000 souls. To this formidable expense must be added handsome presents for the Dalai and the College of Incarnate Lamas. During his first year of novitiate he is expected to learn by heart 125 pages of selected passages from the holy books. These he must repeat without a single mistake if he is to retain his allowances and his rights to residence. The sacred books are often of huge size—some pages measuring as much as eight by four feet—and even if the novice is let off with a paltry couple of square feet to the page his memory needs to be a good one, and his nerve to be steady, when he comes up for his *vivâ*

voce. Sometimes he blunders; and then is shown the door, saddened by the thought of so much wasted labour. Candidates from outside Tibet have the advantage of a three years' period of study before examination.

The Buddhist religion is surprisingly mechanical. Prayers are offered—not said—by attaching a slip of paper on which the prayer is written to the outside of a wheel, turned by hand, wind, or water power. Every rotation means so much more merit gained by the owner of the wheel. By taking due advantage of a high wind he lays up a fine store against a rainy day. When gas illumination reaches Tibet there will be a good opening for the further increase of merit; for by the exercise of a little ingenuity a prayer may be turned off with every cubic foot of gas passed, and the counter will tell the householder just where he stands under this particular heading.

Rich men employ lama labour to read through the 108 volumes that compose the Tibetan canon; since reading by proxy is very meritorious. A band of lamas are collected and armed with teapots. The 40,000 pages of the sacred books are then equally distributed among them. They gabble them off as fast as they possibly can, having recourse to the teapots as soon as they get "dry"; which, from the nature and subject of their task, we may imagine to be pretty often. Lamas are not allowed to smoke, otherwise they would probably stipulate for a supply of cigarettes.

A not less effective way of earning merit is to cut the prayer "Om maneh padmé hum" on the face of a

rock or religious memorial. Some pious Buddhists spend their whole lives in this interesting occupation. It has the advantage over the other methods that it leaves behind a visible testimony to the work done.

One story at least that Chandra Das tells is too good to be omitted. For the Buddhist it has a useful moral lesson.

A saint once saw his wife steal a piece of amber from the wallet of a beggar staying in the house, and substitute an apple. He lectured her by means of the following :—

In ancient India there lived two friends, the one honest as could be, the other dishonest. One day, while walking through a valley, they found a bowl filled with gold dust, which the honest man proposed to divide equally, after due thanks had been returned to the gods. The dishonest man suggested that they had done enough for that day, and that he should house the bowl till the morrow, when matters could be proceeded with.

Next day the contents of the bowl, much to the surprise of Dishonesty, had in some mysterious manner been changed to sawdust. Honesty saw through the fraud, but dissembled. Before leaving for home he besought his friend to loan him his two sons to help eat up the delicious fruit that grew abundantly in his garden. To this Dishonesty and his sons gladly agreed.

When he reached home Honesty bought a couple of monkeys and trained them to answer to the names of the sons, and come out of the house when called. He then wrote to his friend, saying that his two darlings had been changed into monkeys, and asking him to come and see

for himself. Sure enough, when the father arrived and uttered the names of his two boys, out ran the monkeys and climbed into his lap. In his distress he admitted his crime, and offered to divide the stolen gold; whereupon, of course, Honesty told him that the sons were busily engaged in the orchard.

There the story might well end. But the gods, who evidently possessed no sense of humour, could not tolerate deceit. The Lord of Death decreed that Dishonesty should spend five hundred years in hell; and Honesty be born a monkey during as many existences, for the crime of stealing human beings. This really seems hardly fair.

"The Minister," in return for his hospitality, was coached by Chandra Das in English and arithmetic. Like most orientals he studied the stars; and having seen the constellations marked on stellar maps with the form of the figures by which they are named—such as Great Bear or Orion—marked round them, he bought a large telescope that he might see the figures, which he believed to be actually existent in the sky. He also showed much interest in telegraphy and photography; but here, as Chandra Das honestly admits, little help could be given, and the pundit, after the manner of a nonplussed schoolmaster, tried, unsuccessfully, to hide his ignorance by a multitude of words. The good old Minister saw through the device, but entertained no grudges on account of it, as he took steps to clear the way for Das's visit to Lhasa—the consummation of his journey. On the way

Das fell ill, and in order to evade suspicion of his real character he permitted the usual rites of healing to be observed. These were :—

1. Reading of the holy books for two days by twelve monks.

2. Offerings of wafers to gods, demi-gods, and spirits.

3. Offerings to the genii presiding over a quiet mind and peaceful dreams.

4. To "deceive" Life and Death, by offering substitutes—five hundred fish.

These rites—and some medicines—restored the pundit to health. On the last day of May he reached Lhasa.

The most interesting event of his short sojourn there was his presentation to the Dalai Lama, at the palace of Potala, built on a rock outside the city. The audience chamber, on the roof of the building, which is nine stories high, was reached after the ascent of three flights of stairs and fourteen ladders. What followed will be best described in the traveller's own words :—

"Walking very softly, we came to the middle of the reception-hall, the roof of which is supported by three rows of pillars, four in each row, and where light is admitted by a skylight. The furniture was that generally seen in lamaseries, but the hangings were of the richest brocades and cloths of gold, the church utensils were of gold, and the frescoing on the walls of exquisite fineness. Behind the throne were beautiful tapestries and satin

hangings forming a great canopy. The floor was beautifully smooth and glossy, but the doors and windows, which were painted red, were of the rough description common throughout the country." Presents having been offered, the company sat round on rugs.

"The Grand Lama is a child of eight, with a bright and fair complexion and rosy cheeks. His eyes are large and penetrating, the shape of his face remarkably Aryan, though somewhat marred by the obliquity of his eyes. The thinness of his person was probably due to the fatigue of the Court ceremonies and to the religious duties and ascetic observance of his estate.* A yellow mitre covered his head, and its pendent lappets hid his ears; a yellow mantle draped his person, and he sat cross-legged with joined palms. The throne on which he sat was supported by carved lions, and covered with silk scarfs." †

Tea and rice were served, and after grace distributed among those present. The guests then withdrew, receiving as a parting gift packets of blessed pills.

Smallpox had broken out in Lhasa. As a cause of death it is particularly dreaded, since the victim is believed to go straight to hell. From prudential motives Chandra Das cut short his visit and returned to Tashilunpo, in time to be there at the time of the Panchen Rinpoche's death. He was invited to attend the invalid

* Since 1800 A.D. no Dalai lama has attained his majority of eighteen years.

† From the *Narrative of a Journey to Lhasa.*

and prescribe for him, but refused, probably with good reason, as the Panchen's doctors were flogged after the death of their distinguished patient.

The burial—if so it may be called—of a corpse by the Tibetans is to merely cast it out to be devoured by vultures or dogs. The bodies of incarnate lamas are sometimes cremated, and their ashes placed in a tomb; and more rarely embalmed. A very great personage may be food to vultures, the officiating priest cutting up the body into small pieces, which are flung to the foul birds. If many vultures come to share the feast, it proves that the dead was very virtuous; whereas a small attendance betrays a sinful life. Before the partition begins a slit is made in a certain region of the skull lest the spirit should pass out some other way and enter a state of damnation.

Murder is punishable by a fine varying in value according to the importance of the slain. Thieves have to pay a fine of from one hundred to seven times the value of the thing stolen, according to the social position of the person from whom the thing is stolen. The harbourer of a thief is considered a greater offender than the thief himself; and one who steals a key or lock is considered to have stolen what it guards. When a person has bought an article with which he is dissatisfied he may return it the same day for nine-tenths of its value; on the next day for four-fifths; on the second day for one-half; and after the third day not at all.

Two kinds of ordeal are employed in the trial of

A bird's-eye view of the city of Lhasa. In the centre rises the Cho-Khang, the Grand Temple of Buddha. This city is to Buddhism what Rome is to Catholicism; but all "unbelievers" are rigorously excluded.

persons charged with certain serious crimes—the ordeal by fire and the ordeal by water. In the first case the accused has to carry away a red-hot stone as large as an ostrich's egg for a few paces in his bare hands; in the second, he must pick a pebble out of a cauldron of boiling oil or water. If his hands suffer little injury he is held innocent; if they blister badly he is condemned. The tests are almost precisely similar to those employed in Europe during the Middle Ages.

Polyandry, the marriage of one woman to several husbands, prevails in some parts of Tibet, especially in the agricultural. Mr. W. W. Rockhill considers the custom to have arisen from the extreme difficulty of maintaining a large number of families in the small districts where agriculture is possible. Among the nomadic Tibetans, whose flocks are constantly increasing, monogamy and, rarely, polygamy is the rule.

Chandra Das returned to India in January, 1883, and in consideration of his valuable services was created a Companion of the Order of the Indian Empire, besides receiving a pecuniary grant from the Royal Geographical Society.

His visits to Tibet had a tragic sequel. Soon after his departure from Tashilunpo "the Minister," or Sinchen Lama, was arrested by order from Lhasa, imprisoned, flogged, and flung into the Brahmapootra with his hands tied behind him. His servants, almost to a man, had their hands and feet cut off, and their eyes gouged out, and were left till death—which the lamas say they never inflict—released them from their agony. His house and

property were confiscated and remain unoccupied, and though the lama's reincarnation has appeared in a boy it has been refused recognition by the authorities. A writer in the *Times* * who visited the minister's home says: "There is one strange thing in the lama's house which defies explanation. The central upper room is decorated with minutely drawn scenes from the life of each one of the reincarnations of the Sinchen Lama. Beside these pictured chronicles is set the seated form of the special incarnation whose life they record. The last of the series is, of course, that of Chandra Das's patron. He sits conventionally, Buddha-wise, with a simpering baby face and a green nimbus round his head. Beside him are the events of his childhood and manhood. One after another the artists set down the miracles he wrought and the good deeds by which he acquired merit, the reward of which, as a Bodhisat, he was bound to renounce for the good of mankind. As he drew to the close of his work he painted in also small written descriptions explaining the pictures. Then the lama said, 'Paint me also a house of such and such a sort,' and he described it very clearly and in great detail. 'And under it paint me a river with a dead body floating in it.' And the painter did so. But when he asked what inscription he was to put on the house and on the river the Sinchen Lama said, 'Put no inscription.' But he would not explain nor say at all why the two pictures were to be drawn. Only after his disgrace the Abbot and lamas of Dongtse recognised with awe the very house in which he

* April 22nd, 1904.

was imprisoned, and the very spot where he was done to death. And there the pictures are to this day."

Like other Tibetan stories, that of the Sinchen goes too far. And the worst of it is that the ending relates to a fact.

NOTE.—The author has kindly been permitted by Mr. John Murray to make quotations in the above chapter from Sarat Chandra Das's *Narrative of a Journey to Lhasa.*

CHAPTER V

FROM MANCHURIA TO THE PAMIRS

IN the first chapter we saw Dr. Sven Hedin traverse Asia from the Pamirs to Pekin through Northern Tibet and the Ordos Desert. Ten years prior to his great march Captain F. E. Younghusband,* of the 27th Lancers, starting from Pekin with Kashgar in E. Turkestan as his objective, had already crossed Central Asia in the reverse direction by a route some hundreds of miles further north. As the two journeys are to a certain extent complementary, a few pages will be devoted to the experiences of this intrepid officer in the Gobi Desert, the Pamirs, and Himalayas; not omitting reference to an interesting "preliminary canter" that he took in Manchuria, as part of a transit of the vast Chinese Empire from end to end.

This great undertaking was modest enough in its inception. A traveller by instinct, Captain Younghusband gladly accepted, in 1886, an invitation to spend his leave with Mr. James, of the Indian Civil Service, in visiting Manchuria, a province just then beginning to attract the notice of military men, and almost a virgin

* Now Lieutenant-Colonel.

land for British exploration. The object of their particular interest was the "Chang-pai-shan," the famous "Ever-white Mountain," the birthplace of the Manchu dynasty at present ruling in China. This mysterious peak, which, though once visited by an adventurous Jesuit two centuries ago, still retained much of the glamour of romance, is situated in the heart of an immense forest on the border of Korea, and was described as rising to an enormous height and having on its summit a lake of unfathomable depth.

Starting from the treaty port of Newchwang, the party made their way by Mukden to the valley of the Yalu. Travelling was exceedingly laborious, especially after they left the river and turned off into the forest which everywhere clothes the spurs of the mountain, the baggage-mules having to be dragged by main force through the underwood and across frequent bogs lying between the ridges. At length the mules could go no further, so, each man shouldering his pack, the travellers proceeded on foot, following a branch of the Sangari River, said to have its source near the summit of the White Mountain.

It was tough work. Reduced to half rations, tormented in the day by swarms of blood-sucking insects, half suffocated by night in the wretched hovels of the Chinese musk-hunters, the only shelter obtainable, they toiled along, until at last the forest opened and they beheld the object of their search. It fell far short of their expectations. The height proved to be no more than 8,000 feet, and the whiteness, such as it was, was due, not to snow, but to disintegrated pumice stone. However, they were

not without their reward. Captain Younghusband writes: "We made for a saddle between two rugged peaks which crowned the mountain. We pressed eagerly on to reach this, as from it we hoped to look out beyond, far away over Corea on the opposite side. At last we reached the saddle, and then, instead of the panorama we had expected, we looked down in astonishment on a most beautiful lake in a setting of weird, fantastic cliffs, just at our feet. We were, in fact, on an extinct Volcano, and this lake filled up what had once been its crater. The waters were of a peculiarly deep blue, and situated here at the very summit of a mountain, and held in on every side by rugged, precipitous cliffs, this lake was particularly striking." From the summit nothing could be seen but leagues of rolling forest, stretching away in every direction as far as the eye could reach. Delighted with this success, the half-starved travellers recovered their mules and followed the main stream of the Sangari down to the considerable town of Kirin on the border of the forest. In this neighbourhood, as in many others, sturdy Chinese from the central provinces were to be seen reclaiming the country abandoned by its original Manchu inhabitants, and clearing the forest in the same energetic manner as our colonists in Canada. From Kirin they made their way to Tsitsihar, on the Mongolian confines — space will only allow the briefest descriptions of their further travels—and thence right across Manchuria to the Russian frontier, where they were most cordially entertained by the colonel commanding a Cossack post on the shores of Possiet Bay. Captain Younghusband formed the best opinion of

Russians as good fellows. All he met with on his travels, whether soldiers or merchants, invariably gave him a thoroughly warm-hearted and hospitable welcome, free from the slightest suspicion of international jealousy.

After a second expedition to the borders of Mongolia, they returned to Mukden and Newchwang, and thence followed the cross-road to Tientsin, observing on the way the first Chinese railway in course of construction between that city and Shan-hai-kwan. In connection with railways amusing mention is made of the "Feng-shui" superstition, relating to the spirits or devils which loom so large in Chinese imagination. These demons are supposed to be able to travel straight ahead, therefore a Chinaman is careful to build a wall across the front of his house-door to keep them out. When the railway was projected, the natives perceived that the spirits, by travelling on the tops of the carriages, would be able to plunge straight into the houses. However, the diplomatic engineer reassured them, pointing to the embankment and bidding them consider how many devils it would keep out, running for miles as it did just in front of their doorways.

At Tientsin the party broke up, and Younghusband proceeded to Pekin. While he lingered there enjoying the hospitality of the British Legation and studying Chinese life, there came what seemed the chance of a lifetime. Colonel Bell, V.C., arrived in Pekin with the purpose of travelling overland to India, and expressed his willingness to take the captain as his companion. "Here was a chance," writes the latter enthusiastically, "of visiting that hazy, mysterious land beyond the Himalayas,

and actually seeing Kashgar and Yarkand, with whose names I had been acquainted since I was a boy, through letters from my uncle, Robert Shaw. A journey overland to India would take us through the entire length of Chinese Turkestan, the condition of which was still unknown since the Chinese had reconquered it by one of those long-sustained efforts for which they are so remarkable. We should be able to see these secluded people of Central Asia, dim figures of whom I had pictured in my mind from reading the accounts of the few travellers who had been amongst them. Then, too, there was the fascination of seeing the very heart of the Himalayas, as we should have to cross their entire breadth on the way to India. And all combined was one grand project—this idea of striking boldly out from Peking to penetrate to India—that of itself inspired enthusiasm and roused every spark of exploring ardour in me." The Viceroy proved gracious in the matter of extended leave, and preparations were hurriedly completed.

It was arranged, however, that the two officers should take different routes at starting, and join forces at Hami (Khamil), a place some 2,000 miles away in the desert. Colonel Bell was first to move, his longer road lying through the Central Provinces, and, true to his reputation as a rapid traveller, was never overtaken. On April 4th, Younghusband also left Pekin, with one Chinese servant and an interpreter, starting upon his tremendous journey by a route never previously attempted by a European, through the deserts north of the Great Wall.

MANCHURIA TO THE PAMIRS

Before taking our traveller further, it will be well to glance at the map and briefly survey the country through which he had to pass. The plateau of Mongolia comes down, in rolling grassy plains, to within a few hundred miles of Pekin. Eastward, and south of the Altai Mountain system, stretches the vast Gobi, or Sham, Desert, a howling, barren waste traversed by arid mountain chains, which extends through Kansu, south of the Thian Shan, to join the Tarim Desert of Eastern Turkestan, the extreme province of China. Oases are few, and water is only found near the bases of the mountains. At the western end of Chinese Turkestan rises the lofty Pamir plateau—the "Roof of the World"—joined from the south-east by the mighty Karakorum range of the Himalayas, from which again run back eastward the Kuen-lun Mountains of Northern Tibet.

The start from Pekin was made on horseback, along the caravan route to Siberia, the luggage being carried in carts. On the second day they passed through the inner branch of the Great Wall, an imposing castellated erection of solid stone, over thirty feet high. Two days later, near Kalgan, they saw the outer branch, a poor structure of mud, with frequent gaps. Beyond lay the open plains of Mongolia, affording easy travelling as far as Kwei-hwa-cheng, where the carter's contract ended and the desert stage to Hami began. Fresh transport was difficult to find, as the road is dangerous for small parties; but eventually a contractor undertook, for the sum of £45, to provide camels and a guide, and to

deliver the travellers and their baggage at Hami in sixty days.

This was the most formidable section of the journey, and the start upon the 1,200 miles, almost all through desert, could only be made upon an auspicious day. Such an one having arrived, the little party set out. It consisted of the explorer himself, his Chinese boy Liusan, a little opium-smoking camel-driver, and his Mongol assistant, with eight camels, of which one carried water-casks and another brick tea, the current coin of the deserts. Climbing the buttress hills of the high plateau of Mongolia, they entered the solitudes of the Gobi. A sterile, waterless plain stretched to the horizon, broken only by ranges of bare hills to right and left. Scarcely a sign of life was at any time visible. To allow the camels to feed by daylight, travelling was mostly done between three p.m. and midnight.

It was not an enjoyable experience. "Anyone can imagine the fearful monotony of these long, dreary marches seated on the back of a slow and silently moving camel. While it was light I would read and even write; but soon the sun would set before us, the stars would appear one by one, and through the long, dark hours we would go silently on, often finding our way by the aid of the stars alone, and marking each as it sank below the horizon, indicating how far the night was advanced. At length the guide would give the signal to halt, and the camels, with an unmistakable sigh of relief, would sink to the ground; their loads would quickly be taken off; before long camp would be pitched, and we would

turn in to enjoy a well-earned sleep, with the satisfaction of having accomplished one more march on that long desert journey." The old guide possessed a marvellous faculty for following the track, scarcely visible even by day, and on the darkest night never failed to find the wells.

In this style they crossed the Galpin Gobi, about the worst part of the whole desert, suffering much from high winds and dust storms on the way, until they reached the foot of the Hurka Hills, an offshoot of the Altai Mountains. Here they entered a weird valley filled with wind-raised sand-dunes, having the barren Hurka Hills on the north and a similar parallel range on the south, between which they travelled for more than 200 miles, not without fear of brigands. After crossing an open plain, on which were seen herds of wild asses, they reached the spurs of the Altai Mountains, where water and vegetation became more plentiful.

About this point Younghusband discovered that, owing to the miserable quality and condition of their camels, they were already a week behind time, a loss there was no means of making up. Skirting, as usual, the base of the mountains, they came to the Ya-hu oasis, offering a pleasant sight of trees and cultivated ground. Then came another leap across the plains to the eastern butt of the Tian Shan, the snow-clad "Heavenly Mountains" of the Chinese, which marked the end of the desert journey. During this stage another very bad piece was crossed, the desert of Zungaria, absolutely destitute of even vegetable life. An incident was the finding of

the tracks of that mysterious animal, a wild camel. Further north they had picked up heads of another denizen of those wild regions, *Ovis Poli*, Marco Polo's great sheep, which stands twelve hands high, and has horns up to six feet round the curve. At last Hami was reached. But Colonel Bell had passed three weeks before.

From this point travelling through Turkestan was comparatively easy and comfortable. The Turks live in houses, decently clean ones too; cultivated oases are of frequent occurrence, and the roads are practicable for carts. For 1,500 miles Captain Younghusband's course lay through this province, following the southern foot of the Tian Shan, until he saw, as though floating in the sky, the snowy summits of the great Pamirs. He was now approaching Kashgar, forty days from Hami, and, as he held, the turning-point for his homeward journey. At Kashgar is stationed a Russian consul, with whom he did not fight, as an Afghan friend apprehended; and the town, as also Yarkand, the other principal city of Turkestan, is in regular communication with India, and the focus of a considerable trade. We will therefore leave our traveller to follow the beaten track alone, and take up the tale at the point where, still keen upon exploration, he left it to cross the mountains by a path new to Englishmen.

A threefold barrier of gigantic ranges over 300 miles in total width separates Turkestan from India, consisting of the Kuen-lun, the Karakorum, and the Himalayas. Through these the road in regular use winds by way of

Leh in Ladak to Srinagar in Kashmir. Younghusband proposed to take a short cut across the loop and examine the practicability of the Mustagh Pass over the Karakorum, which had been used by the natives, but was reported as now closed by a glacier. It was a bold enterprise, especially for a man worn with thousands of miles of travel, but a fitting conclusion to a remarkable adventure.

The most careful preparations were made. A guide and seven other native mountaineers were engaged and thoroughly equipped, and thirteen ponies packed with supplies. Crossing the Kuen-lun at an altitude of 16,000 feet the party plunged into "a labyrinth of pathless mountains, rising into tier after tier of snowy peaks," through which they made their way by difficult river-beds, until, under the shadow of the stupendous cone, K.2, the second highest peak in the world, they reached the foot of the Mustagh glacier.

The glacier was worthy of its surroundings. Its foot had reached the valley leading up to the pass, and had blocked it for miles with a jumble of bergs and mounds, among which it seemed impossible for man, much less for ponies, to find a footing. Nevertheless, way was made, and after incredible labour lasting several days the poor beasts were hauled up on to the snowfields above. Here the party bivouacked, and next morning, the ponies and less able-bodied men being left behind, completed the toilsome climb of the crest, some 20,000 feet in elevation, there to find themselves looking down from the brink of a sheer precipice of ice. Younghusband stood silent

in bitter disappointment. His men, however, holding that no Englishman ever turned back from an enterprise, saved the situation by forthwith preparing for descent.

It was a stern piece of mountaineering. "We had brought an ordinary pickaxe with us, and Wali (the guide) went on ahead with this, while the rest of us followed one by one behind him, each hanging on to a rope tied round Wali's waist to support him in case he slipped while hewing steps across the ice-slope. This slope was of hard ice, and, thirty yards or so below the line we took, ended in an ice-fall, which again terminated far beneath in the head of a glacier at the foot of the pass. Wali with his pickaxe hewed a way step by step across the ice-slope, so as to reach the rocky cliff by which we should have to descend on to the glacier below. We slowly edged across the slope after him, but it was hard to keep cool and steady. From where we stood we could see nothing over the end of the slope but the glacier many hundreds of feet below us."

They made their point, but this was child's play to what was coming. "The cliff we had now to descend was an almost sheer precipice: its only saving feature was that it was rough and rugged, and so afforded some little hold for our hands and feet. Yet even then we seldom got a hold for the whole hand or the whole foot. All we generally found was a little ledge, upon which we could grip with the tips of the fingers or the side of the foot. The men were most good to me, whenever possible guiding my foot into some secure hold, and often supporting it there with their hands; but at times it was

all I could do to summon sufficient courage to let myself down on to the veriest little crevices which had to support me." At last, after sunset, they safely reached the glacier below the pass, and the supreme object of the journey was accomplished.

Several hurried marches brought them to Askoli, whence supplies were sent back to the men left with the ponies, with instructions to them to take the back trail and join by way of Leh. Meanwhile Younghusband, scorched by sun and frost into the semblance of an Asiatic, pressed on to Srinagar, where congratulatory telegrams were handed to him, and on November 4th, exactly seven months after leaving Pekin, drove up to the mess-house of his regiment in Rawul Pindi. Colonel Bell had, however, arrived in India a month earlier, and so held the honour of being the first Englishman to achieve the journey from China by land.

The reputation gained from this successful travelling kept Captain Younghusband in the minds of the Government, and in 1889 he was commissioned by the Foreign Office to explore parts of the northern frontier of Kashmir. A tribe of freebooters had been giving a lot of trouble on the road from India to Yarkand, levying blackmail upon the merchants and raiding the helpless inhabitants even of the distant Pamirs. Their headquarters were the little state of Hunza, or Kanjut, in British territory, and the Government, with a view to putting a stop to their operations, desired to learn something of their immediate geographical surroundings. With an escort of six Goorkhas Younghusband travelled

by the road which, in most part, he had followed from Yarkand, crossing this time the Karakorum Pass. From the northern side of the mountains he carried on the work of exploring the unknown passes by which the raiders issued from their fortress. In the course of these investigations he discovered the Shimshal Pass, and coolly walked into a fortified post of the Kanjutis. Returning to India by the skirts of the Pamirs, where he met with a rival explorer, the Russian Captain Grombtchevsky, whose countrymen also were taking stock in this wild no-man's-land, on his way he passed right through Hunza and held an interview with Safder Ali, the chieftain of the country. Within two years a British expedition had entered Hunza, defeated Safder Ali, and driven him into exile, and the state is now peaceful under our rule.

In the following year Captain Younghusband was again on the tramp, this time to explore the Pamirs. A pamir, strictly speaking, is a plain high up among the mountains, formed by the filling up of a valley by detritus from the peaks; but the name is generally applied to the mountain mass, the "Roof of the World," in which the great ranges of Asia meet one another. The principal incident of this expedition was the high-handed action of the Russian Colonel Yanoff, who ordered him off what was not Russian territory, into unknown regions from which he extricated himself with great difficulty.

During 1893 and 1894 official duties occupied the explorer in Hunza and Chitral, the latter state then under the government of the Mehtar Nizam Ul-Mulk, whose murder a few months later led to the attack on the British

agent and the famous march of the relief expedition. With his interesting account of this remote country and its simple-minded but shrewd inhabitants, exigencies of space forbid us to deal, and this chapter must here find its end.

NOTE.—The quotations made in this chapter are taken from Captain F. E. Younghusband's *Heart of a Continent*, by the kind permission of Mr. John Murray.

CHAPTER VI

AN ADVENTUROUS JOURNEY AMONG CELESTIALS AND LAMAS

THE opening of the Chinese Empire to foreign trade has taxed the energies of many generations of merchants and statesmen, Asiatic, European, and American alike, and seems to promise abundant occupation of the same kind for generations still to come. The source of difficulty lies not in any objection on the part of the average Chinaman to intercourse with outsiders, for he is a born trader and only too ready to work hard for his living, whether at home or abroad; but may be ascribed rather to the political jealousy of the ruling classes, who dread, not without good reason, any form of change, as necessarily threatening their privileges and monopolies, and to the intense national pride, which the pushing European merchant is so prone to ignore, cordial relations being hard to establish between parties mutually despising one another. During the last few decades a much better feeling has grown up in the maritime provinces of the east, but the line of resistance has been very stubborn in falling back inland, and Western China, especially the quasi tributary kingdom of Tibet, still

maintains its uncompromising attitude, particularly against any access by land from British Indian possessions. A most interesting account of one of the earliest attempts to open up communications in these regions is to be found in the *Travels of a Pioneer of Commerce*, describing an overland journey from China towards India, written by Mr. T. T. Cooper, and published in 1871.

Mr. Cooper, who as agent of the Chamber of Commerce at Calcutta had acquired full knowledge of the possibilities and requirements of Indo-Chinese trade, started from Shanghai in the year 1867 to investigate the routes connecting Western China and Tibet with India and British Burmah. The undertaking offered every promise of dangerous adventure. Beyond Hankow, an open port 700 miles up the Yangtse River, there was at that time no security for the "foreign devil," even in the provinces of China proper, where the Imperial writ ran and the authorities might be looked to for aid and protection. Yunnan, on the Burmese frontier, was in a ferment of rebellion, and in the highest degree dangerous for travellers. The eastern kingdom of Tibet, though actually subject to China, was under the influence of the lamas of Lhasa, no better inclined towards strangers than at the present day. The only road ran through one or other of these contiguous provinces, consequently the prospect of a successful crossing of the tremendous mountain barrier, in the face of organised hostility, was a remote one for a solitary Englishman, unable to speak the language, and so poorly equipped with funds that he had barely £200 wherewith to make his preparations.

But Cooper, whose dignified and convincing narrative unmistakably conveys his force of character, was of the stuff of which real pioneers are made. Determined to be turned back by nothing but the imminence of certain death, he started with the primary intention of making his way "from the farthest navigable point on the Yangtse River, *viâ* Li-kiang-foo, in the north of Yunnan, to Sudiya, on the Brahmapootra, in Northern Assam, and thence to Calcutta." Should this prove impracticable, he proposed to reach Lhasa, and thence India by the now familiar route taken by General Macdonald's expedition. As a further alternative, there was the chance of some other intermediate path by which the obstacle might be penetrated.

Before leaving Shanghai Cooper had obtained the invaluable co-operation of the French Roman Catholic Mission, by the aid of whose admirable organisation it would be possible for him to reach the farthest confines of Western China, and even beyond, with a minimum of trouble and risk. A draft of young missionaries, freshly arrived from France, was just then starting for Chung-Ching in the province of Sechuan, and in their congenial company he travelled to within a few miles of Hankow. At this place trouble arose through the spiteful action of the French consul, who happened to be smarting under the editorial lash of the local English newspaper. This gentleman, by a kindly exercise of authority, hurried the Fathers away from Hankow while Cooper was still occupied over his passports at the previous halting-place, and all efforts on his part to re-establish touch with them

proved of no avail. Without their aid he could not proceed, so had to return to Shanghai.

However, the check had beneficial results, for the scurvy conduct of the Frenchman gained for the traveller the sympathy of the mercantile community at the great port, who had previously been inclined to look askance on the undertaking as likely to bring about competition with their trade, and funds were subscribed which enabled him to engage an interpreter and a guide, whose services he could not otherwise have afforded. The former, George Philips by name, Philip for short, was a Chinese Christian, highly educated for the priesthood, and proved a most valuable auxiliary, for though his determination to face the unknown required some nursing at first, he afterwards showed admirable nerve and resource in the face of danger. Eventually a start was made from Hankow on January 4th, 1868, by one Tang Koopah, a tradesman, according to the imposing Viceregal passport he carried, duly authorised to travel on the Great River and through the countries beyond to India, in appearance a respectable elderly Chinaman, with spectacles and shaved head, and clad in pigtail and petticoats.

The Yangtse-kiang is one of the mighty streams of the earth. Rising in Tibet not far from the sources of the Indus, it becomes navigable soon after entering China and forms the grand highway of commerce between east and west. At Hankow it is a broad breast of waters, flowing tortuously through extensive plains, and easily navigable by sail or steam. Higher up, among the hills of Sechuan, it has cut for itself a tremendous channel, forcing its way

through a succession of awful gorges, where the westward-bound junks have to be hauled up against the current, by means of a rope attached to the mast-head, upon which pull perhaps a hundred men. Notwithstanding the arduous and dangerous nature of the work, constant strings of junks and rafts pass up or down at all seasons, carrying an astonishing aggregate of merchandise.

Travelling on the Yangtse, as Cooper found it, was not luxurious. It is possible to lie down in a cabin six feet wide and five feet high, but not to do much else, nor has a junk a promenade deck. It will therefore be kind, as well as expedient, to hurry our Englishman over this stage of his journey, through the dreary fens of Hoopeh, as far as the important town of Shasu. Here he betook himself, as one travelling in Europe might, to his hotel, a verminous hostelry where he declined the foreigner's privilege of paying twice the usual charge for his accommodation, but had to submit to the curiosity of the natives, who, of both sexes, thronged his room without ceremony, but not without the politeness which is a natural attribute of the Chinese. Less politeness, but no active insolence, was shown by a party of disbanded soldiers, true to type, "braggarts, thieves, opium-smokers, and inveterate gamblers," who invaded the inn and lived at free quarters, according to the custom of their class.

At Shasu a fresh boat had to be hired, suitable for surmounting the rapids of the next stage, to Chung-Ching in Sechuan. The rate to that place reached the formidable figure of 48,000 chen, a charge which reads

more reasonably when reduced to English currency, for 1,000 iron chen, or cash, go to the silver tael, value 6*s.* 8*d.* Hence the great convenience of the letter of credit upon the western establishment of the French Mission, which Cooper had obtained at Shanghai.

Through the famous Ichang gorge the mighty river, contracted to a width of 300 yards, debouches from the hill country, gliding deep and black between walls of perpendicular cliff, towering to a height of nearly a thousand feet. Owing probably to the great depth of the channel, the current is generally sluggish, rapids only occurring where an obstruction of rocks rises in the bed of the stream. Similar gorges are characteristic of all the Upper Yangtse, and the navigation of them provides a livelihood for a numerous and peculiar stock of boatmen and trackers, the hardest-working folk in the world, who strain incessantly at the tow-ropes, singing cheerfully as they go, from morning till night, for something less than a shilling a day.

Chung-Ching (otherwise Chung-King) is a large city, and the central mart of Western China. Arriving safely here, after some perilous experiences, Cooper had definite news of the spread of the Mohammedan rebellion in Yunnan, making it necessary forthwith to set aside the idea of traversing that province. By this the choice of route was severely limited. In fact, it only remained to push on to Bathang in Eastern Tibet, and thence endeavour either to reach Sudiya on the Brahmapootra, or to proceed by Lhasa to Darjeeling. The commercial

objects of the journey would be better served by the former route, so it gained the preference.

Bathang, like Chung-Ching, is on the Yangtse, which makes a deep bend to the southward in the interval. The connection between the two cities is therefore by road, through the tremendous frontier range of the Yung-ling. For this part of the journey fresh preparations had to be made, entailing a sojourn of some days in Chung-Ching, which were spent in sight-seeing under the auspices of the French Fathers and their native friends, Cooper's disguise making such diversion possible. He was now an exemplary Chinaman, except in the matter of talk, which his dignity allowed him to leave to his companion. The Western Mission, which plays such an important part in this brief history, requires, and deserves, a few words to itself. Established about 1745, after the failure of the Jesuits in the same region, it made steady progress, in the face of continuous opposition from the authorities and occasional persecution, until at the beginning of last century its converts numbered 40,000. More peaceful times came about 1820, and some years later the Chinese Christians were reckoned at nearly 100,000. Subsequent treaties secured some rights, or at least some recognition, for the missionaries, and under an edict of Khang-hi toleration was accorded to those who would swear never to return to Europe. Thus the Fathers now enjoy some sort of protection from the authorities, but their true safeguard against the ever-present danger of lawless outbreaks, of which the late Boxer uprising is typical, lies in the good-

will of the classes from which their converts are drawn. A young missionary entering China devotes the rest of his life to his task, and adopts Chinese costume, language, and mode of life, moving among the natives in all respects as one of themselves. His pay is a mere pittance, 20 taels a month, while 100 is the salary of a bishop. The operations of the Mission, admirably organised, embrace the provinces of Sechuan, Yunnan, and Eastern Tibet, under the paramount authority of the Apostolic Bishop at Chung-Ching. The success of their methods is remarkable, but it is only won in the face of unremitting hostility from the governing classes, desperately jealous of the political influence they fear the Fathers may obtain.

The journey from Chung-Ching was made in chairs, each carried by three coolies. Two or three extra men carried the baggage, and the whole party kept up a good average pace of six miles an hour. The country traversed is extremely fertile, and bears large crops of sugar, wheat, barley, opium-poppies, and other produce. Coal and other minerals are plentiful in the hills. The possession of his Viceregal passport secured respect for Tang Tajen ("his Excellency Tang") wherever it was necessary to show it, especially when some minor mandarin, according to custom, attempted a "squeeze"—in other words, tried to levy blackmail.

This "squeezing" is the curse of China. It is universal. Every official, from Viceroy to tax-collector, deems it his privilege, if not his duty, to get something for himself out of every transaction, and the unhappy layman has

no choice but to submit. Extortion has become a custom, and custom tyrannises supreme in the Flowery Land.

At Chen-tu, the capital of Sechuan, a passport was obtained for Lhasa, useless, as it subsequently turned out. Shortly after leaving the city, Cooper overtook a military force marching towards Yunnan for the suppression of the rebellion. It appeared that a general had been ordered to enrol 40,000 men, which he had done, so far as drawing many months' pay for such a force constituted enrolment. In six months, however, the army, whose numbers fortunately never exceeded 250, had only managed to advance thirty miles towards the scene of operations, and having received no pay whatever during the period, was recouping itself as best it could. At their halting-place Cooper found the soldiers roaming about "like so many wolves," dragging shrieking women by their hair through the streets, or carrying off doors and shutters for firewood. This is the normal procedure of a Chinese army on the march through its native land. The general's methods are illustrative of the rank corruption which reduces to a farce an excellent scheme of Imperial government.

The Fie-yue-ling range was crossed by paths "fit only for birds," and suspension bridges of loose planks laid on chains: this, nevertheless, was the mandarins' high-road to Tibet, kept in repair at the public cost! The exhaustion caused by this climb necessitated a rest of several days, devoted to buying mules for the Tibetan passes. Meanwhile the gallant army overtook the travellers. Bursting into Cooper's room at the hotel, intent on

pillage, the advance guard suffered a severe check, going down like ninepins before the fists of the enraged Englishman. Reinforcements came up, but were held at bay by his revolver, until the arrival of the mandarin in command, whom the weapon also brought to reason. The officer proved to be a decent fellow in his way, and behaved well afterwards, though getting professionally drunk at night; but the wretched village, deserted by its inhabitants, was utterly devastated.

The rest of the stage to Ta-tsian-loo was made in the company of a kindly French Bishop, through an awful country of defiles, torrents, and hurricanes. The town named is in Eastern Tibet, but held by a Chinese garrison, and here the travellers first came in contact with the Buddhist lamas. These gentry had been warned of the Englishman's approach, and were taking due precautions against his entering their forbidden Central Kingdom. From this point onwards he met at every turn their relentless opposition, which only stopped short of taking his life owing to their fear of the Chinese jurisdiction.

His Chinese costume being no longer useful, Cooper now appeared, to the astonishment of the natives, in the garb of a British sportsman. He also changed his stock of chen, which are not current in Tibet, for Indian rupees, tea, beads, and other articles of barter. The rupees that carry most value are those showing the head of Queen Victoria, held to be the presentment of the Grand Lama! It is always necessary in these wild

regions to carry a stock of food, as little is obtainable outside the towns or larger villages.

The natives of Eastern Tibet, as well as those of the Central Kingdom, if we may accept reports from the present scene of military operations, are kindly folk and sociable enough in themselves, owing their truculence towards foreigners entirely to the teachings of the lamas, who hold them, body and soul, in abject servitude. It is not possible here to investigate the causes of this predominance of the priestly caste, but its results may be briefly summed up in saying that the lamas jealously reserve to themselves all knowledge, wealth, trade, and political power, and are numerically strong enough to keep them so long as existing conditions remain. The intrusion of foreign ideas of liberty, especially such as they see prevailing in British India, would soon destroy their monopoly, hence their inveterate hostility to strangers may be ascribed less to religious fanaticism than to sordid worldly wisdom.

The road from Ta-tsian-loo to Bathang crosses even more difficult ground than the previous stage, some of the passes reaching an altitude where breathing was difficult. The animals barely survived, and a prolonged halt for recuperation was necessary at the latter town. The plot now began to thicken. The boundary of the Inner Country was close ahead, and though the mandarins, both Tibetan and Chinese, were polite and even cordial, it soon became evident that the road to Lhasa was practically closed. Cooper endeavoured to match craft with craft. Learning incidentally that there was a prac-

ticable road from Bathang to Rooemah, in Assam, he worked his Lhasa passport for all it was worth, hoping his antagonists might consent, by way of compromise, to his taking the southern, and for his purpose the more desirable, route. But neither lamas nor Chinese had any desire to bring Assam tea into competition with their own monopoly, so this scheme met with no more encouragement than the other. The position was desperate, so Cooper decided to start for Assam, having accepted passports for Yunnan which would take him to Atenze, some distance on his road, where he hoped he might be able to give his obstructers the slip. Eventually, having parted affectionately from his good friends, he and Philip, escorted by two unwelcome Tibetan guides, left Bathang on the most adventurous stage of his journey.

Complications began at once. Tempted to join what seemed to be a merry picnicking party of girls in a pleasant walnut grove, all unawares Cooper was put through the ceremony of marriage with one of them, and to his astonishment found himself, at this most inopportune juncture, saddled with a wife. There was no escape, so he had to feign acceptance of the situation, and treating the young lady as a daughter, he proceeded on his way. A day or two later a band, apparently of robbers, appeared, but sheered off promptly at sight of the revolver. In the confusion, however, the rascally guides, acting doubtless on orders, bolted with the whole stock of provisions, pursuit being impossible under the circumstances. The scope of this calamity was realised

when they tried to obtain food on the road. The lamas were showing their hand. Everywhere provisions and shelter were churlishly refused, and starvation stared them in the face. Philip now proved his sterling value. A lamb was "picked up" out of a flock on the road, but before a meal could be made a lama furiously set upon them, claiming it as his property, though paid for several times over. Suddenly a gigantic Tibetan pinioned Cooper from behind, while an Amazon of equal stature set to cudgelling his head from in front. Things were looking very serious when Philip seized his master's rifle, clapped it to the giant's head, and compelled him to let go. Cooper fought himself clear, but the precious lamb disappeared with the lama and his men. Genuine robbers also attacked them, but were driven off by rifle-shots. Happily other travellers had pity on them, and they struggled into Atenze, a little frontier town, finding there a comfortable hotel. Meanwhile the unhappy little bride had been safely handed over to some of her relations.

The tribes of this region are out-and-out savages, rendering slight allegiance to China, but firmly ruled by powerful chiefs. Fortunate in making friends among these, particularly with La-won-quan, chief of the Rooquors, an honest warrior, who afterwards proved a strong rock of defence, Cooper was able to press on as far as the town of Weisee. By this time, fairly beaten by the lamas, he had again changed his plans, and was aiming for Tali-foo in Yunnan, thus coming within the zone of the trouble caused by the Mohammedan re-

bellion. The moment was an unpropitious one for travellers, as military movements were imminent. Both sides regarded him with suspicion, and spread reports to his discredit. From Weisee he advanced some marches to the village of Tze-fan, the chief of which befriended him for La-won-zuan's sake; but the extreme precariousness of his position was brought home by a night attack made upon him actually in the house of his protector, and reluctantly he allowed himself to be persuaded to turn back to Weisee.

His troubles, however, were by no means at an end. On the departure of his friend the Tartar general there commanding, the Chinese civil mandarin, one Tien, was left master of affairs. This worthy, of the type of the plausible villain of melodrama, induced Cooper, whose imagined wealth he coveted, to take up his abode for security's sake in the Yamen, or official residence, and kept him there a prisoner for two months. Insults and threats in increasing measure failing to extort a loan, at last Tien, in company of two other mandarins of like kidney with himself, invaded Cooper's room with forged letters demanding the surrender of his arms and baggage. Then follows some pleasant reading. Goaded to desperation, Cooper sprang to the door, bolted it, and drawing his revolver covered Tien's head. The terror of the mandarins, he says, was positively helpless. Writhing and helpless, they had to sit there while the contemptuous Philip deliberately turned out for their inspection every single article of baggage, to convince them once for all that the great wealth had no existence. Then they were

politely bowed out. This display of spirit had a wholesome effect, but the confinement continued. An attempt to escape by bribing the guard failed, but was so far successful that a letter was sent to the Rooquor chief. Very promptly that excellent warrior despatched a strong deputation, which quickly brought Tien to his bearings. The mandarins were now glad to be rid of their captive, who, fever-stricken and sick at heart, lost no time in departing from Weisee.

Having now given up all hope of effecting his purpose, Cooper proceeded to retrace his steps to Hankow. One more chance seemed to offer itself when he met the Nepalese ambassador, who had previously offered to convey him to Lhasa on his way home. But the Goorkha was unable to renew his offer. The return journey was now full of incident, of which space forbids mention, and eventually, after nearly two years' absence, Cooper safely reached Shanghai, so far from being discouraged that he forthwith began preparations to make good the missing links in his route to India by starting afresh from the other end.

NOTE.—The author has to thank Mr. John Murray for permission to here quote from *The Travels of a Pioneer of Commerce*, by Mr. T. T. Cooper.

CHAPTER VII

THE STRANGE PEOPLE OF THE EAST INDIAN ARCHIPELAGO

FEW portions of the empire are more vaguely known to its citizens than those British possessions which are situated in the islands, great and small, of the East Indian Archipelago, lying east of the Malay Peninsula and north of Australia, and sometimes grouped under the convenient name of Indonesia. These countries are comparatively old in the history of discovery, but apart from the adventures, dear to our childhood, of Captain Cook and the other early explorers, little in the way of stirring events has happened to bring that part of the world under the notice of the everyday newspaper reader. British North Borneo, Sarawak, and British New Guinea are, as names, sufficiently familiar to many, even outside the ranks of postage-stamp collectors, but they lie off the beaten tracks of travel, and have few European visitors beyond hard-driven Government officials, missionaries, and busy traders.

The smaller islands, in many cases, still remain nameless

on the map. Recently, however, mainly owing to this outlandishness, these regions, now fairly peaceful under British rule, have attracted considerable attention from scientific men interested in the customs and characteristics of primitive tribes; from the students, in more precise language, of anthropology, which is concerned with the descent and different races of mankind, and of its allied sciences, sociology and psychology, treating respectively of man's relations with his fellow-creatures and the keenness and development of his senses.

In the year 1898 a small party, headed by Dr. A. C. Haddon and consisting of Cambridge men of science, went out, under the auspices of the University, to explore anthropologically the islands of the Torres Straits and, as far as time permitted, the portions of Borneo and Papua mentioned above. The work before them was the investigation not only of the customs and beliefs of the native tribes, but also of their mental and sensory capabilities. The following may be given as examples of the subjects with which they had to deal: powers of sight, hearing and feeling, colour-vision, sensibility to pain, memory, and ability to write, draw, or read.

In taking these severely technical observations they had the use of a well-equipped physiological laboratory, the first, Dr. Haddon claims, to be brought to bear upon a people only just emerging from perfect savagery.

With the official records of the expeditions we have, perhaps fortunately for ourselves, nothing to do. Sufficient for the non-scientific reader is Dr. Haddon's popular account of what was seen and done, which he has published under

the title of *Head Hunters: Black, White, and Brown*, a book brimful of interest from cover to cover. The title is derived from the peculiar practice, common to almost all the countries under review, of collecting and hoarding, as trophies or mementoes, the heads of slain enemies or of defunct relatives. The "white" hunters are not, as might be eagerly surmised, a newly discovered savage tribe of Caucasian origin, but merely our peaceful scientists themselves; the playful allusion being, of course, to their zeal in acquiring museum specimens.

The expedition reached Thursday Island, in Torres Straits, in April, and worked together, or in separate parties, for about a year. Its actual movements, however, are of no great importance as no consecutive narrative is required; and in selecting for notice here out of the embarrassing abundance offered by the pages of the book, the few topics which can be compassed by a short chapter, an endeavour has been made to choose those that have the most general connection with the various islands visited.

Thursday Island is a military station, commanding the narrow channel by which alone, owing to the innumerable coral reefs and islets, large ships may navigate the wide straits. It is also the centre of extensive pearl fisheries, which attract adventurers from all parts of the world, especially from Japan; a fact which gives it further notability as being the first British colony to feel the pressure of that expansive and energetic nation.

From Thursday Island the route lay to the Murray Islands, at the eastern end of the Straits. Here the

expedition set to work. The methods adopted were those common in scientific exploration. Each member—all were men in the forefront of their profession and recognised authorities—conducted his special branch of research and was ready to give assistance to another when required. Dr. Haddon himself was mainly concerned with social investigations, such as the customs and beliefs of the tribes—by far the most interesting side to the general reader—and it is with his personal experiences that we have most to do. The daily routine devoted the morning to solid technical work, such as taking measurements, experimenting in sense-action, and studying languages. Later, native friends would drop in, and all would gossip together on lighter subjects—rain-charms, ceremonial dances, bull-roarers, and such like. The natives were usually very ready to give information. Dr. Haddon says: "Several of the elder men used to come and talk to me at various times, but they came more regularly after we had witnessed the Malu performances and while the excitement about them was still fresh. . . . These good people enjoyed describing the old ceremonies. Often they brought me something that was formerly employed in their mysteries, or a model of it. When any action was described the old fellows jumped up and danced it in the room, sometimes two or three would perform at once. I always had a drum handy to be in readiness when they broke forth into song, and for the dance they took bows and arrows or whatever else may have been appropriate from the stock of instruments that was in a corner of the room. We had many interesting séances, and it enabled

us to get a glimmer of the old ceremonies that was most tantalising. If only we could have seen the real thing, how different would the description be!"

When sacred subjects were under investigation some subtlety and tact was required. Such information as they were willing to give was obtained independently from the different old men who had it to impart. The evidence of one would then be checked by submitting it for criticism to another, who would probably add something fresh of his own. Thus a useful emulation was aroused which gradually brought to light all that was to be learned. Sometimes investigation was carried a step further. The ceremonies of rain-making, for instance, being to the fore, and some little professional jealousy having been kindled, two of the leading practitioners were persuaded to give a small rehearsal in pantomime. This led to even better things. "A couple of days later Gasu gave us a complete demonstration at the other end of the island, with all the accessories. Four large plaited cocoanut leaves were erected to represent rain-clouds; there was a blackened patch on each of these to mimic the blackness of a rain-cloud, and one or two pendent leaves imitated the falling rain. The four screens enclosed a small space in which a hole was made in the ground. The *doiom* was decorated with certain leaves and packed in a banana leaf with various minced leaves and numbers of red seeds; the leaf was filled with water and placed in a hole, the rain-maker all the while muttering the magic formulæ. During part of the performance a lighted brand was waved about, and at another a

bamboo clapper was rattled. Thus were simulated the lightning and thunder." The *doiom* is a small human effigy in stone, very precious. Poor old Gasu's passed, by purchase, into the hands of his examiner, and now doubtless adorns an English museum.

The Murray islanders are of the Melanesian stock, narrow-headed people. In the western islands of the Straits heads are wide, showing an admixture of other blood. This question of head-measurement bears closely on the work of the expedition, and will justify a brief explanation of the terms used. Taking the figure 100 as representing the length of a given skull; if the breadth exceeds 80, the head is called short; if it falls below 80, the head is long. Europeans average 78 and so are long-headed. We have that much at any rate in common with the Murray men. They are generally pleasant, sociable fellows, gentlemen in their way, and blessed with a sense of humour. Hard work is not in favour, as is natural with the happy possessors of a fertile land and a productive sea. "By-and-by" is the season held most convenient for doing what must be done. Some of the men take a desultory part in the pearl fisheries and the collection of bêche-de-mer, the sea-slugs of the coral reefs, dear to the heart of the Chinaman. Their plentiful leisure is largely occupied in practising string-puzzles of the cat's-cradle order, and in earnest top-spinning competitions. Christianity is well established; and the efforts of the missionaries have been very successful in destroying the influence of old superstitions.

Totemism, so prevalent elsewhere, does not obtain in Murray Island, but its place is taken by the cult of Malu, a legendary hero, which constitutes a sort of secret society or guild. Very interesting is the account of the reconstruction of the initiation ceremonies held in connection with this cult. These ceremonies, by which youths are admitted to man's estate, are observed throughout this region. Customs and details vary widely, but the following outline is given as being fairly general. When the hair begins to grow on the face, "the lads are secluded in a tabooed spot in the bush, access to which is strictly prohibited to any non-initiated person. Sacred emblems are frequently shown to the lads; these are often masked men who symbolise some legendary or mystical person or event. Usually a flat, thin piece of wood shaped like a willow leaf is shown to them; this is the so-called bull-roarer. It is fastened to one end of a piece of string, the other being lashed on to a stick. The apparatus is whirled round and round above the head of the operator, and according to its size and shape it makes a buzzing or a humming noise; the movement may be varied by violently lashing it backwards and forwards, when it gives rise to a siren-like shriek. The weird and mysterious sounds issuing from the bush terrify the women and children, who regard them as the voices of spirits. The secret is soon learnt by the young initiate, who is given a bull-roarer and warned never to show it to a woman or child on penalty of death. Whatever may be done, or shown, or told to the lads is to be kept secret by them, and by way of

emphasising this they are usually frightened in various ways or subjected to severe treatment."

Taboo is a Polynesian word signifying a restriction, or a forbidden thing. It is also applied to a person who is restricted from the use of a tabooed thing.

Some of the elder Murray men were induced to rehearse in full dress the actual ceremony upon the ground where they had been wont to hold it. The *Kersi* (lads to be initiated) having been placed in position, seated in a semicircle at the end of a long, double line of former initiates, "Suddenly the fearsome procession appeared at the other end of the avenue of men, and the three *zogole* (holy men) slowly marched with peculiar movements. They alone wore leafy girdles (it should be remembered that at that time the Torres Straits men invariably went nude except the performers of certain ceremonies). The head of the first *zogole* was covered with a ruddled turtle-shell mask, representing a human face, which had a beard of human jaw-bones; above the face were leaves and feathers, and hanging from it behind was a painted carapace of a turtle, the latter was supported by a long string by the second *zogole*. The third *zogole* bore a turtle-shell mask representing a hammer-head shark, on which was a human face; it was provided with human arms and hands, and decorated with leaves, feathers, and turtle-shell figures of birds, frogs, and centipedes. When the *zogole* came to the semicircle of *Kersi* they turned round and kicked out behind. They retired and advanced again, and then once more. The sacred words were uttered and the chant sung. The *Kersi* were

told the hidden name (of Malu), and they had to make a present of food to the *zogole*." Other ceremonies followed, after which the lads entered upon a long course of instruction in the rules of conduct, the customs of the tribe, and the traditions of the elders, remaining the while under various taboos. At the end they were recognised as men, and at liberty to marry.

In Tut, a neighbouring island, initiation ceremonies are still observed. For a month beforehand the lads are kept in the *kwod*, or tabooed enclosure, out of sight of the women. It is not an altogether happy time for them, but violation on their part of the prescribed forms is punishable by death. "During the month of their seclusion the boys daily had charcoal made from charred cocoanuts rubbed into them; they might eat anything except fat, and were in charge of their mother's brother. During the day the boys were covered with mats, sewn together to make little tents; so that when the boys sat down only the tents were seen, and when they walked their legs alone were visible. The whole day was spent in the sacred camp. After sunset the uncles took the boys to a house set apart for them, and before sunrise, when 'the pigeon whistles,' they were marched back to the clearing. The old men taught the boys what they might and might not do as men. The code of morality, so far as it went, was very high, one quaint instruction being, 'you no like girl first; if you do, girl call you "woman!"' For it is the custom here for the women to propose marriage to the men." At the end of the period they were washed, decked out, and marched

back to the village to be rejoiced over by their female relations.

The tribes of Cape York, on the Australian mainland, seclude their initiates for a much longer period, and the ceremonies culminate with the knocking out of a front tooth of each of the lads. It may be assumed that an initiate is seldom sorry to have left his youth finally behind him; but the ceremonies are by no means mere empty heathen rites, but have their solid educational and social value.

The use of *zogos*—oracles for forecasting the future—is still common enough among the Torres Straits islanders. The Tomog *zogo* on Murray Island had been an oracle of fame in its day, but was found in a lamentable state of neglect. A *zogo*, it may be stated, is sometimes merely a place of divination, sometimes the shrine of a defunct hero, which if properly "worked" can bring desired events to pass. That of Tomog belonged to the former category and may be selected for description. "This famous *zogo* consists of a collection of stones, on each of which was formerly placed a large shell, usually a great Fusus or a helmet-shell; each stone with its shell represented a village or a district of the island. A little way off was a single stone and shell which stood for the whole island. Divination was accomplished by the voices and movements of birds, lizards, insects, or the appearance of natural objects. Anything that happened to the separate stone and shell concerned all the inhabitants of the island; but anything that happened to one of the grouped stones and shells related only to the man or men who live

A native of Warrau, Berbice, clad in a dress of plantains and a mask. This is the costume in which he goes his rounds as a ghost when no one must go abroad (Dabb-dabb) thing is eaten.

A platform from which the fishermen spear turtles. The platform is made of a number of stout poles tied together and surmounted with the bowing head of a canoe. The platform itself is fourteen feet long and ornamented with cassowary plumes, its upper end being attached to about forty fathoms of rope.

in the house or district represented by that particular stone and shell." By these means it was possible to discover who had laid a charm upon a sick, therefore bewitched, person. Witchcraft is very much the same all the world over. The news of the day might also be obtained in advance by those who cared to take the trouble. The party persuaded the old *Mamoose*—a dignitary ranking vaguely from headman to king — to give a private rehearsal. From the twittering of birds he foretold that a boat was approaching. Later in the day a boat duly arrived.

Other *zogos*, generally shrines, were useful for regulating the direction and force of the wind, or the movements of fish and turtles; others for ensuring good crops of yams or fruit, each having its special line of efficacy. A skull, properly prepared and decorated, made excellent *zogo* for the "smelling out" of thieves or spell-casters.

Mabuiag is another island of the straits which received particular attention. It lies to the west of Murray, and being less fertile is inhabited by a more energetic population, who are enterprising sailors and considerably more advanced in civilisation. Here our explorers were in touch with a people still under the influence of totemism, a subject of the greatest interest to anthropologists. Totemism may be defined as a very primitive stage of culture in which social life is bound up with and regulated by reverence for some natural object, such as a species of animal, bird, or plant. The system prevails throughout Australia and Polynesia, is very general among the North

American Indians, and occurs in several tribes inhabiting regions as widely separated as South America, Senegambia, South Africa, India, and Siberia. Traces are found in Europe, among the gipsies of Transylvania, for instance, and it was known to the ancient Egyptians, Greeks, and Romans. "Every tribe," says Dr. Haddon, "is composed of several divisions or clans, and it is the rule in Australia and in some parts of Melanesia for each clan to be intimately associated with at least one class of animals, plants, or natural objects. This animal, or whatever it may be, is spoken of as the totem of the clan or the individual, and it should be borne in mind that the totem is a species of animal or plant and not an individual one. Thus all cassowaries, and not any one particular bird, are the totem of the whole cassowary clan, or of each member of that clan."

The association between the man and the totem is vague, but, generally speaking, the totem is regarded as protecting the man, while the man respects the totem. Injury done to a totem is followed by death or disaster; thus a man whose totem is a turtle could not kill or eat turtle, except under desperate conditions. Some clans are unwilling to look upon, or even to name their totem. Where the totem is a plant, respect is shown by refraining from use of it for food, clothes, or house-building. For instance, the nupa-palm people will not use the leaves of that tree for roofing their houses, as is the custom, but make shift with sago-palm leaves. In some cases resemblance to the totem is aimed at by means of clothing or

painting, or the body is tattooed with its likeness. It is also used as a writer's signature.

The members of a clan regard as relations all outside their own tribe who have the same totem, and consider the bond even stronger than family ties. Thus a man may travel throughout the length and breadth of Australia and be assured of help and hospitality wherever he may meet with men of the same totem. Very important restrictions are placed upon marriage. It is a universal rule that no man may marry a woman of the same totem as himself, the penalty for breach of this law in Australia being death. Children as a rule inherit the mother's totem; but a wife, in many cases, acquires her husband's on marriage.

In the course of the sojourn in the straits, an extended visit was made to the opposite coasts of New Guinea, an island which we share with the Germans and Dutch. The people here belong to the eastern branch of Papuans, and do not differ greatly in manner of life from the western islanders. Tattooing is general, the bodies of the women being treated all over; but only the faces, and occasionally the arms and legs, of the men. Characteristic of this coast are the curious marine villages, built on piles driven through shallow water at some distance from the shore. They are the modern counterparts of the lake-dwellings of primeval man found in Ireland, Switzerland, and at Glastonbury, in Somerset. The land villages also are built on piles, ten feet above ground, and some of them contain houses perched high up on trees, the object being in every case security from raiding enemies. The same

principle of defence by piles is followed in Borneo also, where the houses generally accommodate a number of families, a whole village frequently residing under one roof, which may be well over 100 feet in length.

In November the party finally said farewell to the Torres Straits, and sailed by way of Hongkong and Singapore to Kuching, the chief town of Sarawak. Sarawak is a state in a unique position. It is an independent native state, under British protection only, but ruled by an English Rajah, and administered by a combination of English and native officials. Sir James Brooke, the late Rajah, came as a private individual to the rescue of the native ruler when things were going hard with him in 1839, and inspired the people with so much respect that he was appointed his successor in 1842. He in his turn was succeeded by his nephew, the present Rajah. The country is excellently administered, in the interests of its own people rather than of outsiders.

From Kuching Dr. Haddon made a three months' expedition into the interior, leaving the coast at Brunei, of which the name Borneo is a corruption, and travelling by canoe along the waterways followed by the head hunters on the warpath. The coast tribes of Borneo—Sea-Dayaks, Kayans and others—were famous as pirates in the earlier half of last century, and still are apt to raid the inland tribes in quest of heads. In the old piratical times the Malays, who were the leaders of enterprise, enjoyed the help of the Dayaks on easy

terms, taking the plunder themselves, while their allies were well content with the heads obtained.

It is in Borneo that the most interesting cult of the skull is found. The heads here collected are always those of enemies slain in warfare, usually in the course of raids organised for the purpose, and, like scalps with the Red Indians, serve to exalt the successful warrior in the eyes of the women. Further than this, the skulls are endowed with formidable powers for evil and for good, thus becoming treasured possessions of the fortunate takers, and the embodiment of their household goods. Properly housed, warmed, and fed, the skulls, or the spirits with which they are identified, will look after the owner's interests. If neglected, they know how to make their displeasure felt. They are kept in this wise: "Hanging from the rafters of the verandah in most houses are trophies of human skulls. They may be fastened to a circular framework, looking something like a ghastly parody on the glass chandeliers of our young days, or they may be suspended from a long board, which in one house that I visited was painted and carved at one end into a crocodile's head, and the board itself was suspended from carved images of men who represented captives taken in war. The skulls are smoke-begrimed and otherwise dirty, and interspersed amongst them are streamers of dried palm leaves, which all over Borneo are invariably employed in all ceremonies connected with skulls. Usually close by the skulls are pronged skewers on which pieces of pig's meat may be stuck, and short sections of a small bamboo, so cut as to form cups ready for the reception

of borak (a spirit made from rice), when it is desired to feast the skulls or their spirits. Below the chandelier of skulls there is always a fire, which is kept continually burning, for it is believed the skulls like to keep warm, and that if they are kept comfortable and their wants supplied, they will bring good luck to the house and ensure plentiful harvests."

After the death of the original owner, an opportunity is often sought for getting rid of skulls, as their beneficent powers are no longer exercised on behalf of their possessors. For this to be done with impunity ceremonies are necessary, as also when a head changes hands for any purpose. "When a skull is given to a friend the following ceremony has to be gone through. A living chicken is waved over the man who takes down the head, over the ladder, the basket or framework that contains the head, as well as over the skull itself. The owner talks to the fowl, telling it to explain to the head that they are parting with it to friends who will treat it even better than it was treated in its own house. That the new owners will feast it, and it must not consider itself to be slighted in the least degree. All then present join in a war-whoop. A piece of iron is taken, an old parang blade, or a spearhead, or anything made of *iron*, and the head and wings of the chicken are torn off with the iron, which thus becomes covered with blood. The hand of the owner of the skull, who is generally the chief or head man of the house, is next smeared with the bloody iron. This ceremony is called *wrip*, that is, life, and has for its object the prevention of harm coming to

the original owner. Finally, some of the wing feathers of the fowl are pulled out, and stuck into the framework or basket containing the remaining skulls."

A house-moving offers a good chance of disposing of useless skulls. Having been carefully kept in ignorance of what is going to happen, they are moved into a small hut close by and made snug over a fire. Here they are humoured and humbugged into the belief that all will be well, and kept in a good temper until the owners get clear away. The fire goes out and the poor skulls at last realise the situation. But it is now too late for action, and not knowing where to go, they moulder away into impotence amid the ruins of the hovel.

In Torres Straits heads are often those of relations, kept as mementoes. They are not difficult to come by, having lost much of their ancient value. In Mer an offer of sixpence apiece brought in a basketful. At Mabuiag a jew's-harp was a sufficient inducement.

After seeing many interesting sights and collecting much valuable information in the interior, the party reached the sea again at Baram, and a few days later sailed from Kuching for England.

NOTE.—The quotations made in this chapter are taken from *Head Hunters: Black, White, and Brown*, by the kind permission of Professor A. C. Haddon, the author, and of the publishers, Messrs. Methuen and Co.

CHAPTER VIII

THE GOLDEN ROOFS OF TIMBUCTU, AND THE MOUTHS OF THE NIGER

THE CITY OF THE SAHARA

EVERY continent has had its El Dorado, some fabled city remote and glorious, in quest of which many hopeful adventurers have set out, to return disappointed, or to die miserably. Marco Polo, more happy than most, found his vision realised by the imperial palace of Kublai Khan, the roofs of which—cunningly enamelled in "vermilion and yellow, green and azure, fixed by a varnish fine and exquisite"—shone in the distance with resplendent lustre. Sir Walter Raleigh, that knight-errant of Elizabethan days, lost fortune and reputation in vainly seeking his "golden city of Manoa" among the labyrinths of South American forests. But who can compute the treasures torn by rapacious Spaniards from the temples of the Incas; or the shrines ravished by those Europeans who first exploited the fertile plains of Father Ganges? What wonder, then, that in later centuries men listened eagerly to stories floating across the mysterious Sahara, whose burning

sands were as a fiery wall to guard its interior from intruders? By degrees all these rumours of boundless wealth and glittering domes crystallised round one often-repeated name.

Timbuctu (the Tin Buktu of the Arabs) enjoys the unique distinction of being the one *city* in Africa heard of and desired by the outer world, though the mythical "*kingdom* of Prester John" was during two or three generations sought as often in that continent as in Asia. A few other names were, indeed, mentioned as contributing to the caravan traffic,—Jenné, Kano, and so on; but these never touched the popular imagination, nor were considered to be more than tributary villages to the metropolis of the Sudan. The coast towns were already well known, chiefly modern, and open to all inquirers; while, with the exception of the massive ruins in Mashonaland, and some yet unexplored traces of ancient civilisation in the Somali country, no remains of important buildings have even now been met with outside the semi-historical regions of the Lower Nile.

As the focus of all trading routes in Northern Africa, Timbuctu thus gained an adventitious importance. Although no European had ever crossed the desert, Arab caravans plied leisurely to and fro, braving its perils with a hardihood born of long experience and Mohammedan fatalism. They created and supplied a demand for manufactured goods—varying from Sheffield razors and Nuremberg toys to tea from China and sugar from the Indies—and also imported raw silk for local industries. In exchange they traded natural produce, which included

ivory and small portions of gold dust, commodities not unnaturally regarded by foreign merchants as mere samples of unfathomed riches. In justice, however, to the first explorers it must be declared that the adventurous nature of the undertaking attracted them, rather than any hope of personal gain. They went as delegates of some learned or commercial society, desirous of extending geographical knowledge and of opening up new markets for British trade; or were the leaders of Government expeditions despatched with the same object.

When Roman power was waning, about 640 A.D., a great wave of Mohammedan invasion swept from Arabia across the north of Africa to the Atlantic. Within eighty years it had overwhelmed nearly every vestige of Christianity, and through ignorant fanaticism had destroyed most of the priceless Greek and Roman relics, even their great engineering triumphs of reservoirs and aqueducts which carried fertility over leagues of desert. The Arabs' propaganda combined political ambition with religious enthusiasm, and under its influence they poured into Europe until checked by the decisive victory of Tours. Even then the Moors, as they were called from their principal settlement of Morocco, long continued to colonise Spain; and when finally rolled back from the shores of the Mediterranean they still grasped their African conquests. There they became in all respects the dominant race, and so far as possible forced the creed of Mahomet upon the pagan tribes.

These invaders had brought the camel with them, as

well as the Koran, and the whole trade of the desert soon fell into their hands. It was, of course, quite contrary to their policy to admit the "infidel" as a possible competitor, so any European who went thither did so at risk of his life. Nevertheless, as we have seen, some of the jealously kept secrets were whispered to the outer world. One or two travelled Arabs had even written accounts of their experiences in the Sahara and Sudan.

Timbuctu is marked upon maps dated 1373, when it already carried on an important trade in gold and salt. In 1492 it was celebrated by Arab chroniclers as one of the four great centres of Mohammedan culture. Leo Africanus (Eng. ed. 1600) describes its king as possessing a gold currency, and plates and sceptres of that precious metal. Reports of its wealth were rife along the Guinea Coast at the end of the sixteenth century. The "Company of Adventurers" sent explorers up the Gambia river in search of it in 1618 and 1620, but they had no success beyond collecting fresh fables about its "gilded roofs" to whet the appetite of their employers. French expeditions *viâ* the Senegal proved equally unlucky.

In 1723 the "Royal African Company" made desultory attempts by the same west coast route; but the matter was not taken practically in hand till the "African Association" was formed towards the end of that century. It attacked the problem with great energy from east, north, and west. The Egypt and Tripoli routes, however, proved impracticable. Major Houghton, starting from the west, was killed and robbed by the Saharan Moors in 1790, and others met with a like fate. Discouragement

set in. It now became necessary to offer substantial rewards for volunteers, and Mungo Park—a young Scottish surgeon—answered to the call.

MUNGO PARK AND THE NIGER, 1790-1805.

In our limited space we cannot give any details of the famous explorer's marvellous journey. His own unassuming but vivid narrative, published soon after his return in 1797, has lost none of its fascination through lapse of time. Single-handed, like his celebrated countryman Bruce, who crossed Abyssinia and the Eastern Sudan, Park made his way through countless obstacles, bearing terrible privations and disappointments with the greatest fortitude. He tramped along on foot, ragged, starving, companionless, scorched in the desert one month, in the next wading knee-deep through almost impassable morasses, yet never losing confidence in himself nor faith in the guidance of Providence. His kindly tact enabled him to deal with the suspicious natives, and even to soften the fanatical intolerance of their Moorish masters. But sickness and destitution unfortunately obliged him to turn back when barely 200 miles from Timbuctu. Had this point, then, been his only objective, he would have emerged from Africa as unsuccessful as his predecessors. For several years past, however, a fresh problem had attracted the attention of geographers, and to solve this was a principal item in Mungo Park's instructions.

Writers from the time of Herodotus onwards have made frequent reference to the "great river of negro-

land," rolling its broad waters eastwards to some uncertain bourn. Many theories had sprung up about this unknown waterway. Could it bring to the Nile that perennial flow the source of which was still wrapped in mystery? Was it the upper course of the equally unexplored Congo, whose embouchure was on the western coast? Did this mighty Niger empty itself into some great inland lake, or did it reach the Atlantic by an outlet not yet discovered? If Park could not return a definite reply to these various queries, he had at least the satisfaction of being the first European to view the legendary stream, and had his own conclusions—chiefly drawn from native statements—to advance.

"I was told," he says, "that I should see the Niger (which the negroes call Joliba or *the great water*) early the next day. . . . We rode together through some marshy ground, where, as I was anxiously looking round for the river, one of them called out, *geo affili* (see the water); and looking forward I saw with infinite pleasure the great object of my mission; the long-sought-for majestic Niger, glittering in the morning sun, as broad as the Thames at Westminster, and flowing slowly *to the eastward.* I hastened to the brink, and, having drunk of the water, lifted up my fervent thanks in prayer to the Great Ruler of all things, for having thus far crowned my endeavours with success.

"The circumstance of the Niger's flowing towards the east, and its collateral points, did not, however, excite my surprise; for although I had left Europe in great hesitation on this subject, and rather believed that it ran

in the contrary direction, I had made such frequent inquiries during my progress concerning this river; and received from negroes of different nations such clear and decisive assurances that its general course was *towards the rising sun* as scarcely left any doubt on my mind; and more especially as I knew that Major Houghton had collected similar information, in the same manner." *

He was not allowed to cross the river, but the king of Sego sent a guide to conduct him further down it, who asked "if there were no rivers in my own country, and whether one river was not like another," so little could the native mind grasp the idea of scientific research.

At Modiboo, he remarks, "the small green islands (the peaceful retreat of some industrious Foulahs, whose cattle are here secure from the depredations of wild beasts), and the majestic breadth of the river, which is here much larger than at Sego, render the situation one of the most enchanting in the world."

Park continued his journey on foot or in a canoe, finding crocodiles of much less account than the "musquetoes," which deprived him of rest and induced fever. The painful recollection he retained of these pests is also shown by his careful inclusion in the list of necessaries for all soldiers and negroes joining his second expedition of "1 musquito veil and 2 pair of mosquito trowsers" apiece added to their "common cloathing."

At length the increasing hostility of the Moors, and his own distresses, compelled him to give up the idea of even reaching Jenné, a town only two days' journey further

* *Travels in the Interior Districts of Africa*, by Mungo Park.

on. He therefore collected all possible information from natives as to the course of the river eastwards. Below Jenné, they told him, the Niger spreads itself into a broad lake, whence it issues again in several streams, the two principal ones reuniting at "Kabra, the port of Tombuctoo," twelve days' travel by land from Jenné. Eleven days further it passes south of Houssa, described as larger and more populous than Timbuctu itself—though the king of this renowned entrepôt is reported to possess immense riches, "his wives are said to be clothed in silk and the chief officers of state live in considerable splendour." Park remained undecided as to the river's ultimate destination, but inclined to think it most probably the Congo, whose enormous volume of water was still unaccounted for. He traced it upwards as far as it is navigable, no very great distance from the source, and then, after innumerable hardships and months of delay, reached the coast safely with all his notes upon this most remarkable exploration.

A few years later Mungo Park went out again as a Government official in order to discover the lower course or mouth of the Niger. His own somewhat inflated views were expressed in a memorandum to Lord Camden, of the then Colonial Department. He declares such an object to be "in a commercial point of view second only to the discovery of the Cape of Good Hope, and in a geographical point of view certainly the greatest discovery that remains to be made in this world." We wonder to what extent more modern Colonial Secretaries and explorers agree with this estimate! His brother-

in-law, Mr. Anderson, went with him, and Mr. Scott, a draughtsman, while Lieutenant Martyn commanded the escort of English soldiers from the fort of Goree. Some carpenters and sailors were also taken to build and navigate a fleet of boats in which the expedition should descend the Niger.

The first part of the mission, to find a practicable route to the river by means of which caravans might open up inland markets, took seven months to accomplish. The greatest loss received from aborigines was inflicted by the vicious attack of a swarm of bees, which killed some of the donkeys. Wolves also proved very bold and troublesome. The people were willing to trade when they saw the specimens of goods brought from the coast, and never molested the party at its weakest nor injured the stragglers. Had they been the only obstacle to fear, all had gone well. But the always fatal mistake was made of sending a large number of Europeans, though most of them were presumably acclimatised. With the rainy season fever and dysentery set in. Park himself, the lieutenant, and three soldiers (one a virtual lunatic), alone survived to man H.M.S. *Joliba*, which his own hands fashioned out of two rotten canoes and turned into a "tolerably good schooner," upon which the British ensign was hoisted with due ceremony. Park's last reports, sent back before embarking, mention with deep regret the deaths of his companions. But with undiminished enthusiasm he describes himself as about to "set sail to the east with the fixed resolution to discover the termination of the Niger or perish in the attempt." *

* Park's last Report to Earl Camden, November 17th, 1805.

He did "perish in the attempt," while trying to shoot the dangerous rapids of Boussa, already hundreds of miles on the way towards the fulfilment of his life's ambition. The cause of his death is still rather obscure. At this point the hitherto friendly natives proved hostile. It is said that the remaining soldiers used their firearms during the passage down the river, with more freedom than humanity or discretion enjoined. Be this as it may, a fierce attack was made upon the canoe, which got wrecked upon a rock in mid-stream, and the white men were reported to have been drowned in their endeavour to escape by swimming.

Thus ended the life of a gallant Briton, and, for the time being, any large, organised attempt to solve the secret of the Niger's outfall; though several almost unrecorded journeys during the next few years added fresh victims to the West Coast's long death-roll.

THE WALLED CITIES OF THE SUDAN, 1818-1825.

The British Government finally took up the matter and deputed Mr. Richie and Major Lyon to seek a feasible trade-route from the north. If possible, they were to lay the foundation of commercial dealings with the various native potentates whom Mungo Park and other explorers had described as inhabiting the fertile interior. English influence being then paramount with the Bashaw of Tripoli, Mr. Richie's expedition in 1818 proceeded through that country to the old Roman province of Fezzan, now included under the same flag. Here they found Berber people who had partly given up their nomadic habits, and settled themselves in communities with walled towns,

though their speech bewrayed them as of Tuareg origin —the most wild, treacherous, and bloodthirsty of all the desert tribes. Mr. Richie died at Murzuk, the capital of the sultanate, so Captain Lyon carried on his mission and provided a circumstantial account of this region. He penetrated south as far as the confines of Fezzan, across stony, barren, bleak plateaux, only varied by long, shallow valleys, dividing hills about 3,000 feet above sea-level, dotted with oases of flourishing date palms. Soda was also collected on the plains, and appeared to be the sole export.

Two years later Dr. Oudney was sent to carry the exploration a stage further, being in anticipation appointed consul to Bornu for the sake of official rank. Major Denham and (naval) Lieutenant Clapperton were the other Englishmen of the party, which started also under the protection of the Bashaw of Tripoli. However, when Murzuk, "the frontier town of the desert," was reached, and the expedition prepared for its plunge into the unknown wilderness beyond — never described since the days of Leo Africanus—unaccountable obstacles started up. The native escort and promised supplies were not forthcoming. Excuse and delay followed each other in exasperating iteration. Then Major Denham retraced his steps with an energy unprecedented in the annals of North Africa. He dashed into Tripoli like a whirlwind, announced that he was off home to invoke the aid of the Government, and before the astonished Bashaw could get breath again the impetuous Englishman had embarked for Marseilles. The Bashaw woke up then in earnest, and despatched his swiftest vessels in pursuit,

A Turkana elder, showing head-dress affected by these Equatorial Africans. Notice the murderous finger-knife on his left hand.

with letters of apology and promises of amendment. Denham condescended to return. On his re-arrival at Murzuk he found that difficulties had vanished like magic, and all was ready for the trip. But those weeks of chafing inaction in the sweltering, unhealthy town had undermined the constitutions of Oudney and his companion. The climate is most trying all the year round. In summer the thermometer begins its day by reaching three figures not long after sunrise, and the low grounds are a hotbed of malaria; while in winter it registers a temperature of -9° during the night, snow often lies upon the roofs, and ice forms in the water-skins.

Captain Lyon had made an excellent impression upon the border tribes, who consequently received the newcomers with unexpected cordiality. A present was sent by him to the Sheik of Ghat, to be personally delivered. But all the ceremonial of conveying it had to be conducted with almost painful solemnity, as the Tuaregs are gravest of the grave, and to laugh, or even smile, in their streets would be regarded as a wanton insult.

The region next entered is a terrible one for even the strongest traveller. Wells are scarce and oases few, so the desert banditto had almost abandoned that neighbourhood, and strong caravans were apt to take toll from weaker ones unlucky enough to encounter them. In one day over one hundred human skeletons were passed, and as many lay heaped around a solitary well—where their hope of succour had evidently proved vain. Dr. Oudney lost a score of his camels in rapid succession, despite the long endurance of these invaluable carriers. But the weary march was over at last. Grassy plains interspersed

with clumps of trees gradually took the place of sand and pebbles; a beautiful fertile country was reached, whose friendly inhabitants brought milk and fruit to refresh their visitors.

Still pressing onwards, and favourably received, they presently stood upon the shores of Lake Tchad, the very first white men who ever gazed upon its expanse, familiar as it was in the pages of Arabic writers. This strange lake occupies a kind of trough, 800 feet above the sea, in high land dividing the several watersheds of the Nile, the Congo, and the Niger. It possesses "a self-contained hydrographical system," unconnected with either of these great rivers, though at that time Oudney's party fancied it to be the end of the Niger. It is a picturesque stretch of water at flood-level, dotted with green islets and with the little white sails of fishing-boats skimming across it like swift-winged birds. What a welcome change to the jaded travellers from the arid Sahara! But, alas! the trail of the serpent lay over even this idyllic scene. The lovely islands were the lurking-places of a band of negro pirates who infested the shores of the lake, as troublesome in their way as the camel-guerillas of the desert. So much were they feared at one time that trade was transacted on very unusual lines. The would-be seller of salt piled his loads upon the beach and retired into safety: during the night the would-be buyer rowed over and placed opposite each heap the amount of gold dust which he was willing to give as equivalent. He then in turn withdrew, and the trader returning with daylight removed gold or salt

according to whether he felt satisfied or not—the two parties thus never came face to face.

In the dry season Lake Tchad sinks twenty feet to thirty feet, and is sometimes little more than an extensive marsh, its outlets becoming dry *khors*. When the Shari, a river nearly as long as the Rhine, and two or three other affluents bring down the hill floods, Tchad's surplus waters drain away into the north-eastern wilderness.

Situated in convenient proximity to the lake our explorers found towns whose extent and importance filled them with amazement, in spite of current rumours. At Kuka, the capital of Bornu, lying to the west, with a population of 60,000, the sheik or sultan lived in martial magnificence like a chief of feudal days, amid a bodyguard of negro warriors.* These wore tight-fitting coats of mail, iron helmets, and shin-pieces, and their horses' heads were heavily armoured. In spite of their weighty accoutrements, the African cavalry welcomed the strangers with a grand exhibition of wild horseman-

* "Wide through the landscape of his dreams
The lordly Niger flowed;
Beneath the palm trees on the plain
Once more a king he strode,
And heard the tinkling caravans
Descend the mountain road.

. . . . . .

And then at furious speed he rode
Along the Niger's bank;
His bridle reins were golden chains,
And with a martial clank
At each leap he could feel his scabbard of steel
Smiting his stallion's flank."

The Slave's Dream, LONGFELLOW.

ship worthy of the modern Abyssinians. The infantry also deployed in military manœuvres, and the sheik received his guests graciously, supposing them to be an embassy from the English King to congratulate him upon some recent victories—an impression which they were too diplomatic to disturb! The people themselves were comparatively civilised, and their cities were enclosed with high walls, and they held great weekly markets at which ostrich feathers, etc., were exchanged for the products of many distant lands unknown to the purchasers even by name. There the Englishmen saw printed cottons and gay-coloured cloths exposed for sale, double-barrelled guns and British hardware, groceries, writing-paper, and a variety of other luxuries which they did not expect to obtain nearer than the Mediterranean coast. And there they met scholars reading and discussing Plato and Aristotle, translated into the Arabic tongue. All this in the very penetralia of the mysterious Sudan nearly a century ago!

From Kuka the new consul made a tour to Gambaru, upon a river of the same name, which instead of the ordinary collection of huts consisted of well-built brick houses, surrounded by cultivated meadows. Ferryboats plied regularly to and from villages on the opposite bank. But he was fated to get little further. Worn out by the trials of his long journey, faced with unflinching determination, Dr. Oudney died peacefully in his tent January 12th, 1824, on the way to Kano, and his mantle fell upon Clapperton and Denham.

Unfortunately Major Denham had been betrayed some time before into an ill-judged expedition. The turbulent

escort provided by the Bashaw of Tripoli insisted upon undertaking a slave-raid on their own account, and Denham—against the wishes of his companions—accompanied them, merely from curiosity to visit fresh and interesting districts. The raiders—as they deserved—were driven back in confusion, and Denham barely escaped with his life and lost all private effects. These, falling into the hands of neighbouring chiefs, led them to regard the English mission as the allies of the slavers—a suspicion which no future efforts could remove.

Clapperton now proceeded to Kano, the great trading centre of the whole region, assembling over 100,000 people on market-days. This is the emporium of the Houssas, where caravan-routes from all directions meet. In its thriving bazaar the visitor was able to purchase a green cotton umbrella for the reasonable price of twelve shillings, and the traders assured him that—since he was an Englishman—a draft upon a Tripoli merchant would be as much esteemed by them as hard cash from his pocket. Thence he went on to Sokoto and struck up an intimacy with the Sultan, hoping to pass through his territory to the Niger, now only five days' march away, and to supplement Park's exploration. But now his companion's rashness bore its evil fruit. Sheik Bello produced some of Denham's books as damning evidence of ill faith, and absolutely refused to let any member of his expedition proceed further. So Clapperton had to return baffled to Bornu. There he was rejoined by Denham, who had meanwhile been employed upon excursions round Lake Tchad as far as Logón, on the east, where the Shari discharges itself by many mouths. The natives of this

place have a currency of thin plates of iron, and the most refined among their society (like certain of the Masai) murmur so low and indistinctly that it is difficult for a foreigner to engage in conversation with them.

In 1825 the two explorers reached Tripoli again, having amassed a wealth of new and most interesting experiences, for this "raid into the unknown" produced far more useful information than that of the pioneer, Mungo Park, though it is to be regretted that little practical intercourse with the Sudan kingdoms could result. Certainly some enthusiasts—who had never been there—continued to urge the prosecution of a northern route instead of further efforts at river navigation, which was not as moderate and agreeable as camel-carriage! But that inexorable, rainless belt ever stretches across the entrance to the productive, semi-civilised interior; as the fabled dragon—is this the solution of the ancient riddle?—guarded the golden apples of the Hesperides.

TIMBUCTU VISITED, 1826–1828.

Still the great quest was not abandoned. Another hardy Scot came forward to be inscribed upon "the deathless roll of fame," Major Alexander Laing, whose name is immortalised as that of the first European to attain the strenuously desired goal of Timbuctu. But he died in the very fruition of his hopes, and with him vanished all personal memoranda of his journey and success. This much has been ascertained by subsequent inquiries. Major Laing took the same route from the coast as Oudney's party, but under much more distressing conditions, and was attacked and robbed in the desert by

his Tuareg guides, who left him for dead, covered with wounds. An iron constitution and indomitable pluck, however, enabled him to rally; and eventually he entered the famous city on August 18th, 1826. There he remained for a month, till the fanatic Moors insisted upon his expulsion. He got safely as far as El-Aruan, the principal distributing depôt of the Saharan salt trade; but in the desert beyond the Berabish chiefs—almost every murder of foreign explorers is to be traced to some branch of the marauding Berbers—fell upon "el Rais" (as he is always called to later travellers) and killed him; in revenge, they afterwards stated, for the havoc wrought among their own people by Park's muskets during his passage down the Niger nearly twenty years previously. If there be truth in this declaration we may well recall Shakespeare's words,

"The evil that men do lives after them,"

for our travellers have frequently met with trouble, and even death, owing to the ill-treatment of natives by their forerunners. Such men as Lyon, Baker, Livingstone, and Thomson have, on the contrary, prepared the way for future operations by humane and upright conduct which made the name of Briton respected among the most ignorant savages.

All poor Laing's journals and notes were destroyed or concealed by his murderers, and, to the great regret of geographers, have never been recovered. For the next Christian to reach Timbuctu, though gifted with all necessary courage, perseverance, and resource, lacked the trained intelligence which alone can make observations scientifically valuable.

The first European description of Timbuctu, therefore, comes to us from René Caillié, a Frenchman, who, after an adventurous career in many parts of the world, conceived an ardent desire to seek the city of Negroland. The French Government threw cold water upon his efforts. In the end he carried through this exploit on his own initiative, though with help from both English and French residents on the western coast.

Caillié prepared himself for the venture by living for some time in a Moorish settlement that he might learn the language and study Mohammedanism. Then, posing as a disciple of the prevalent cult returning to the home of his childhood, he joined a caravan for the interior. Jenné, upon the Niger, only seen in the distance by Park, proved to be, as the latter anticipated, a considerable city. It is two and a half miles in circumference, enclosed by a rough, earthen wall some ten feet high and fourteen inches thick, pierced by several small gates. The houses —built of hand-fashioned bricks dried in the sun—conform to the Moorish ideal of architecture, being one story high with terraced roofs, and containing a central court. As to the inhabitants, by them the stranger was received with all kindness. They entertained him to tea "served in cups of delicate porcelain," and had come to such a high state of civilisation that he was able to indulge in a pocket-handkerchief again without being conspicuous as a "kaffir." Intercourse with Timbuctu was provided by a service of decked boats, in one of which Caillié embarked. But as the roaming Tuaregs levy toll upon every passenger by road or river, he kept prudently

between decks for the voyage. Four weeks later he arrived at Kabara, the riverine "port" of Timbuctu, situated upon a choked-up channel which once led clear to the city walls. Within the memory of man unusually high floods had filled its banks and submerged the lower town, but the indolent rulers took no steps to reopen the waterway for traffic. Merchandise was carried instead by road, on horseback or camels. So Caillié got him to horse and rode forward with the company, watching eagerly for the earliest glimpse of stately piles clear-cut against the evening sky.

But where were the "golden roofs" and sky-piercing pinnacles of the adventurer's cherished dream? Before him lay a less-imposing *enceinte* than Jenné, a heap of earth-built houses whose encircling ramparts had fallen into disrepair, and whose once teeming population and flourishing marts were now a story of the past. By the irony of fate this mysterious city, which "for centuries formed the goal of so many journeys, and in its way has cost more valuable lives than any other town on the earth's surface," * was attained only when its day was over and its glory had departed.

Crowning a terraced scarp 800 feet above sea-level, with luxuriant gardens stretching far out into the plain that bordered the wide sweep of its walls, the broad backwater (which connected it with the river) crowded with boats and edged by groves of fine trees all the way to the Niger—such was Timbuctu in the days of its magnificence. The palace of the Songhai kings dominated all

* *The Story of Africa*, Dr. Brown.

other buildings, though mosques were numerous, and wealthy merchants had here their principal residences. But tales of this magnitude and splendour only filtered through to Europe after the place had sunk into comparative insignificance.

When the Songhai Empire fell, the Tuareg and Fullah nations (both of Asiatic origin and equally bigoted Moslems) struggled unceasingly for the sovereignty of Timbuctu—that is, for the right of levying dues upon its merchandise. Sometimes one was in the ascendant, sometimes the other; or both demanded blackmail indiscriminately, and pillaged the approaching caravans at will. Their rapacity defeated its own object. Traders had no longer security for either goods or life; the goose that laid the golden eggs was killed. Commerce became deflected to other cities; and gradually Timbuctu lost its proud position. The only remaining buildings of any pretension were several mosques, two of them surmounted by brick towers. The very site of the palace had disappeared. The obstructed channel had spread out into stagnant marshes. Stunted bushes took the place of the trees cut down under the stress of some internecine war; and the gardens disappeared beneath billows of desert sand, which now rolled up to the very doors of the miserable huts crowding the base of the incline.

Yet so hard does tradition die that "even in 1880," says a modern writer, "men of science had not quite disillusionised themselves of the glamour that surrounded the white houses of the ever-dwindling city of the Southern Sahara." *

* *The Story of Africa*, Dr. Brown.

Poor René Caillié, however, had few illusions left. Alas! for the vanity of human wishes! In less than a fortnight his only thought was how to leave this scene of disappointment and make his way homeward. But if Timbuctu were difficult of approach it was still more difficult to escape from. He came under suspicion of being an impostor, not a "true believer," but by zealously repeating the Koran and performing his devotions, presently got away with a camel caravan bound for Tafilet. In crossing the desert all suffered frightfully from heat, lack of water, and whirlwinds of sand which overturned the tents of their encampment, while venomous serpents and insect plagues added to the dangers of the route. The unfortunate Frenchman fell ill, and was jeered at and persecuted by his Moslem companions, whom his professions of piety seem to have but half convinced. For seventy-five days he struggled along, till scattered Berber villages, guarded by savage dogs, broke the monotony, and Tafilet was reached, where he found equally inhospitable treatment. The Moorish Governor refused to listen to him, and the only kindness he met with was from one of the despised Jews. Selling all he possessed he got a donkey, and was able to push on to Fez, reaching Tangier at last in a ragged and almost starving state. There he received glad recognition, and was forwarded to France in 1828 to reap the laurels honourably won by his remarkable achievement. But the Mohammedan disguise gave him little chance of taking notes, so he had to rely upon unaided memory for the details of his journey.

THE MOUTHS OF THE NIGER, 1825–31

In the meantime Captain Clapperton, Oudney's fellow-explorer, had renewed his abortive attempt to find the outlet of the Niger, visiting—if might be—Timbuctu on his way. He was appointed to the leadership of an expedition from Badagry, near Lagos, in 1825. Very soon his white comrades were struck down by the malarious climate, and only his servant, Richard Lander, accompanied him to the Niger at Bussa Rapids. The Sultan of Yauri, near Bussa, showed the Englishmen every attention, as a severe epidemic which carried off the men who had killed Mungo Park, was attributed to "white man's magic," and bred a salutary respect thenceforward. They went on to Sokoto to visit Clapperton's old acquaintance, Sultan Bello, but before he could be coaxed into affording them help on the journey the captain's health broke down. Lander tended his master to the end. Then, finding it impossible to get further along the river, he devoted himself to carrying the explorer's papers safely home. Many hair-breadth escapes did the "Little Christian" have during his solitary tramp back to the coast, but they were chiefly caused by the jealousy of Portuguese factors. In one place he had to stand the native "ordeal by poison," and luckily came through it unharmed.

This experience fired Lander with the wish to complete the enterprise himself. In 1830 he obtained Government aid, and starting with his brother John marched from the coast to Bussa in three months. The Sultan of Yauri was again complaisant, and supplied two canoes

to carry the brothers down "to the salt water." Throughout the cultivated regions they met with plentiful provisions and good wishes to cheer their spirits. Then the river swirled them among jagged rocks, through steep mountain passes into broad plains, and dense forests apparently uninhabited. By this time the rapid torrent had become a sluggish stream, widening out till it was lost in mud-flats and rank vegetation. Crocodiles and hippopotami were frequently seen, and presently native villages half-hidden in the tangle wood, and patches of sugar-cane along the banks. Canoes darted past, but no friendly welcome was offered as in the upper reaches of the river.

The adventurers still paddled onwards, feeling their way cautiously among these depressing swamps, when one day they were confronted by a fleet of some fifty canoes flying the Union Jack and other flags. The people upon them wore European dress, with the exception that pocket-handkerchiefs were substituted for trousers, the latter being considered one of the special "insignia of kings." It was a war party, with arms and six-pounders, whose first idea was to kill the uninvited strangers. These were saved through the good offices of King Boy of Brass, a local potentate, who shrewdly calculated upon white men proving more valuable alive than dead. After further adventures among the Palm Oil Ruffians of the delta, Richard Lander and his brother arrived at Fernando Po, having solved for all time the long-canvassed problem of the Mouths of the Niger, the last and greatest enigma of the Sahara and Sudan.

CHAPTER IX

SCENES FROM LIVINGSTONE'S JOURNEYS

ALL the world has heard of Dr. Livingstone. Everyone knows that he was a great missionary, a staunch opponent of the slave trade, and an intrepid and successful explorer.

But ask your friends to tell you definitely where he went and what he accomplished. The chances are that their replies will be of the vaguest. Let us, therefore, glance briefly at some of the most striking features in Livingstone's long pilgrimages, which extended over a period of thirty-three years.

Had anyone predicted that the young cotton-spinner, who toilsomely qualified himself in the medical art that he might go as a missionary to China, would develop into one of the greatest of African explorers, that prophet would have been laughed to scorn. But David Livingstone had one of those rare characters which prepares itself almost unconsciously for all circumstances. The watchword of his life was "Thorough!" Whatever he undertook was done well. So we see the boy who propped his book upon the loom that he might catch fresh sen-

tences of his lesson as he patiently passed to and fro, who strained his young eyes over Latin declensions in the late evening hours till his mother snatched the grammar and bade him begone to bed, naturally become the youth who devoted his small savings to evening classes in Glasgow and laid the foundation of the medical and theological training which in due course he perfected as a young man under the auspices of the London Missionary Society.

At the age of twenty-seven Dr. Livingstone had walked the London hospitals and received his full medical diploma. He had also gone through a course of theology in England, and was thus equipped to minister to bodies and souls alike. But the Chinese war interfered with his earlier wishes, and in 1840 he was despatched by the London Missionary Society to aid Mr. Moffat's mission for Christianising the Bechuanas at Kuruman, in South Africa. Here Livingstone deliberately separated himself from all his companions, and spent six months alone among the natives, an "ordeal," as he himself calls it, which gained him an insight into their language, habits, and ideas that was afterwards of incalculable value. He in turn impressed them with his kindliness, energy, and pedestrian powers. By his escape from a lion which threw him down and crunched his arm, he must have appeared—to their superstitious minds—to bear a charmed life. Certainly, wherever he went, Livingstone gained an immediate influence over the savage potentates on whose permission he depended to teach the gospel to their tribes. One of these, Sechele, became an eager

"catechumen," though he assured the missionary that his people could never be converted by mere "talking to." He undertook, however, to make them "all believe together," by means of moral suasion conducted with hippopotamus whips! The chief probably understood his subjects, who refused to follow him to baptism, and accused the new teacher of causing a terrible drought which occurred shortly afterwards. They sent deputations to implore rain, if only a few showers. Then "we shall all—men, women, and children—come to the school and sing and pray as long as you please." Livingstone could not deny that rain fell upon the heathen villages around while it passed by his protector's location, and found the fact some trial of his faith. But the poor Bechuana behaved extremely well, and remained friends with him throughout their troubles.

The natives of Africa, he explains (with his customary broad-mindedness), are so much taken up with striving for the mere necessaries of life, that we cannot expect them to have time for pondering the mysteries of the gospel. Introduce trade, supply their simple needs, connect them with "the body corporate of nations," and their spiritual education will have a chance of flourishing. So Government was applied to for trading facilities, and Livingstone's own hands laboured at garden and house as an example to his flock, who admired, but did not rise to imitation. "It is not a hut," they said, in describing that strange novelty, his two-storied, many-roomed building, "but a hill full of caves."

During these early years of his pastorate Livingstone

had married Mr. Moffat's daughter, and with her laid the foundation of two or three Christian settlements. But he was never content to remain long in one place. Each remove was into yet untouched territory, and he still felt an impulse to press further into the wilderness carrying the Good Tidings to heathen nations. Perhaps the subtle passion for geographical research had also seized upon him and encouraged him to examine other regions. Between 1849 and 1851 he made three journeys northward, seeking healthy sites for new mission stations, and hoping to locate the Lake Ngami, hitherto known of only by native report.

THE KALAHARI DESERT AND LAKE NGAMI

North of Livingstone's last sojourning place lay the Great Kalahari Desert, the "Sahara" of South Africa, which had hitherto held back both predatory natives and keen sportsmen. This desert region the missionary now determined to negotiate by skirting, if he were unable actually to cross it. Though generally rainless, and to a great extent waterless, it is by no means a barren, sandy plain; indeed, it has a light, silicious soil in which grasses of various kinds flourish. The ancient river-beds contain alluvial soil, baked to such cement-like hardness that its depressions form natural reservoirs for rain-water, which remains fresh several months. Nature provides sustenance by the plan of greatly developing tuberous roots, even upon plants which do not possess them under ordinary circumstances. These tubers keep moist and cool by growing a foot or more beneath the surface. Some of

them are as big as a man's head, and afford a very sufficient meal. Then there is the *Kengwe*, or water-melon, which covers acres of ground directly after a fall of rain. Man and beast—even the rhinoceros and the lordly elephant—revel alike in its juicy fruit. Certain districts are covered for miles by dwarf mimosas and other shrubs, lavishly supplied with thorns which rend the flesh. Woe betide the unlucky traveller who wanders from the beaten track; within a few minutes he may be hopelessly lost in this matted jungle.

The desert is not uninhabited, despite its forbidding exterior. Bushmen with their poisoned arrows dwell there, and a branch of the Bechuana called Ba-kalahari. The latter try to gratify their agricultural instincts by scratching the ground to produce melons and pumpkins, and keeping small herds of goats, though sometimes they can only be supplied with water by spoonfuls. The natives kill small animals, dress the furs and sell them to outside tribes. This is their commerce. Ostrich eggs are their "water-skins," and the water is drawn up by suction from damp patches of sand through hollow reeds. An African can thus live comfortably where an uninitiated white would perish miserably of thirst and hunger.

Joined by a couple of enterprising sportsmen, Dr. Livingstone started on June 1st, 1849, for his first actual exploring trip, and arduous indeed the beginning of the journey proved. Water was obtained at the camping-place by guides scraping out the sand with their hands—spades they despised. The unfortunate oxen had to pass four full days (96 hours) without quenching their thirst. Elands, ostriches, and certain other game seem able to

dispense with drinking for long periods, some elands found about here actually having water in their stomachs when killed, although so far from any stream or pool. When melons are plentiful the oxen learn to prefer them to water.

One day the travellers came upon a big salt-pan, which a mirage effect converted into the very image of a rippling lake reflecting shady trees. Cattle, dogs, and even the Hottentot drivers ran off towards it, completely deceived. The same blue haze magnified a herd of zebras to resemble elephants, and Mr. Oswell, to the general amusement, started in quest of tusks!

Presently the river Zouga was reached, and the natives who frequent it in "dug-out" canoes declared that the stream came from a land "full of rivers and large trees." This gave Livingstone his first clear vision of a grand waterway through fertile, populous regions, instead of the continuous "sandy plateau" with which geographers had furnished the unknown centre of the continent. He welcomed the idea with enthusiasm, which was increased by his arrival upon the shores of Lake Ngami (August 1st, 1849), the first time "this fine-looking piece of water was beheld by Europeans." Though of some expanse, the lake is shallow, and the river-beds dry for some months in the year; so this was not commercially a valuable find. The discovery, two years later, of the Zambesi, as a fine, deep river, at Sesheke, in the very middle of Africa, was much more important, for the river was supposed to have a comparatively short course.

But in these regions the tsetse-fly was first encountered, and proved then—as since—an insuperable obstacle to any

animal transport. The second great scourge of the African traveller, malarial fever, also made its appearance in such a virulent form that Livingstone reluctantly gave up the attempt to take his family on with him in ox waggons. He resolved to send them home and to return unencumbered in search of a coast route (shorter and cheaper than the long trek from the Cape), by means of which legitimate trade might be begun with the tribes of the interior. The very roots of the slave trade would thus be cut away. For though the raiding Arabs had only lately found a path to these out-of-the-world districts, they had already wrought such terrible havoc as wrung the missionary's heart.

BOERS AND BECHUANA

The trip to Capetown in 1852 that he might see off his wife and children was Livingstone's first visit to civilisation since he left the colony twelve years before. And now he only made as long a stay as was necessary to obtain stores and carry through other business, which included perfecting himself in the art of taking correct astronomical observations. Then once more he took the long, weary waggon journey back to his now solitary home and ever-beloved Bechuana.

These tribes had suffered much for many years past at the hands of the white man, whole villages being literally enslaved by the Boers to cultivate their farms, or massacred in cold blood on pretence of insurrection. One sentence written by their devoted missionary in 1857 has never lost its application. "The Boers have generally manifested a marked antipathy for anything but 'long

shot' warfare, and sidling away in their emigrations towards the more effeminate Bechuana, have left their quarrels with the Caffers to be settled by the English, and their wars to be paid for by English gold."

During the temporary withdrawal of "British influence," therefore, these raiders attacked Sechele's settlement on the plea that he was waxing "too saucy," killed many of the men, and carried off two hundred of Livingstone's school children into slavery. They plundered his house, tore the books of his excellent library to pieces, smashed his stock of medicines (with which he had often relieved the Boers themselves), and finally bore away all the furniture and clothing of the family and sold it "at public auction *to pay the expenses of the foray!*"

The missionary thus returned to find his protector fled, his flock scattered, and his property destroyed. But instead of wailing over this apparent ruin of the labour of years, he accepted the omen as giving him freedom to penetrate northwards and carry Christianity to new peoples. "The Boers resolved to shut up the interior and I determined to open the country; we shall see who have been most successful in resolution — they or I," exclaimed the undaunted Scot. Half a century later we have seen and profited.

Northward, therefore, fared the explorer, to project future stations among the Barotese and Makololo, whose language so far resembles that of the Bechuana that he was able to converse with and teach them. But it was soon evident that missions would never flourish in complete isolation. A path to the sea must be found and

trade opened, before Europeans could be established in the up-country regions. Sekeletu, chief of the Makololo, was desirous of commercial relations with the whites, and did all that was possible to speed this enterprise. But before Livingstone started on his perilous journey westward he took part in a royal tour of the newly elected king through his dominions.

It was a quaint progress. Sekeletu decided to ride Livingstone's old horse, and the minor chiefs—fired by his example — mounted selections of the oxen. The dignity of this procession was somewhat marred by the inexpert equestrians constantly falling off to one side or other, like Alice's "White Knight." A trader, George Fleming, whom the practical missionary had brought through with him from Cape Town, had supplied red tunics and coloured prints to the warriors, whose heads were fantastically decorated with white ox-tails or nodding ostrich plumes. The chiefs carried only horn clubs, their servants following with the shields. Battle-axe men trotted beside them, ready to *run* a hundred miles on an errand. Common men bore loads; the hundred and sixty attendants furnishing an imposing retinue. Sekeletu's authority was firmly riveted upon his outlying provinces.

Nine weeks of such intimate relations with the natives proved, however, "a severe penance" to British susceptibilities. So when the tour concluded, Livingstone was glad to accept the chief's offer of twenty-seven picked men as escort, and to start from Sesheke, hoping to make his way down to the coast near Loanda.

TRANSAFRICAN JOURNEYS AND THE VICTORIA FALLS

Perhaps this is the turning-point when missionary became insensibly metamorphosed into explorer, though Livingstone's connection was not formally severed with the London Missionary Society till after his return to England in 1856. Henceforward his life was a series of laborious journeys, all undertaken with single-minded zeal to introduce the blessings of civilisation into these remote wildernesses. Marauding Boers and waterless deserts had hitherto been the chief obstacles in his way; now he had to fight against the Arab slavers and the fevers caught in swamps and brimful rivers of the central plateau. And now also he entered upon that great series of geographical revelations, of vast lakes, mighty cataracts, unknown mountains, and the watershed of unexplored rivers, which will always be connected with his name. For it was Livingstone who unveiled to Europe the secrets of Central Africa. He who tracked the Zambesi to its source, finding the little Lake Dilolo far to the west. He who crossed the outskirts of the great Congo forest and found one after another that river's southern affluents. Six months and longer he journeyed on by path and by river, making careful astronomical and topographical observations, even when almost too weak to move with recurrent fever. His notebooks are crowded with matters of interest concerning native tribes, natural history, everything that came under his eye, though he did not live to reduce these scattered jottings to regular order. Later explorers

have found that whatever Livingstone noted was *correct* in all its details. At length he reached S. Paul de Loanda, more dead than alive, and was tenderly nursed back to health, the Portuguese authorities vying with his own countrymen in their attentions. Meanwhile his Makololo, who had suffered much less than their leader, enjoyed the novelty of their surroundings, and employed themselves profitably in cutting and selling firewood, and in helping to unload a shipful of "stones that burn," *i.e.* coal. Their amazement was great at the size of the houses and ships. The brig where they were entertained by English sailors seemed to them "not a canoe, but a town!" and who ever heard of climbing up ropes into a town? They reaped the full reward of the faith they reposed in Livingstone's promises when other natives tempted them to desert him. "You will be sold for slaves when you get to the coast," they said; "how can you trade with men who live in the sea, as all these white men do? Look at their hair, it is straight with sea-water. Lay your ivory on the seashore, and *perhaps* you will find goods in its place next morning."

A year later they marched triumphantly into Sesheke and Linyanti, spruce in their white European suits, announcing that they had "finished the whole world." Sekeletu's appearance at church next Sunday, clad in a colonel's complete uniform, attracted more attention than the missionary's sermon. Loanda merchants had sent other valuable presents—a horse, some donkeys, and goods of various kinds. But many tribes on the road were already demoralised by contact with the slave-traders,

[*By permission of the B. S. Africa Co.*

The World's Greatest Waterfall, the Victoria Falls on the Zambezi, discovered by Dr. Livingstone in 1854. It has a volume of water four times that of Niagara and is precipitated over a mile-long ledge 400 feet into a zigzag chasm. So great is its force that it breaks into a snow-white sheet, and sends up five great shafts of vapour, whence the Falls derive their native name, "The smoke that sounds."

and demanded payment for permission to pass. No route for wheeled traffic existed through Portuguese territory; everything must be carried by hand. The Makololo "braves" volunteered to guide fresh parties, and open trade on a small scale. Meanwhile Livingstone sought a better way to the east coast—also in the hands of the Portuguese—and, descending the Zambesi, made his most marvellous discovery, the waterfall which he named after his Queen.

The natives — indifferent as they are to natural phenomena—had spoken to him of the "smoke that sounds," so he took this chance of investigating the marvel.

"We came in sight," he says, "for the first time, of the columns of vapour, appropriately called 'smoke,' rising at a distance of five or six miles, exactly as when large tracts of grass are burnt in Africa. Five columns now arose, and bending in the direction of the wind, they seemed placed against a low ridge covered with trees; the tops of the columns at this distance appeared to mingle with the clouds. They were white below, and higher up became dark, so as to simulate smoke very closely."

The surrounding scenery was very beautiful. Trees and flowers in great variety covered the banks and the islets which divided the broad stream. Creeping cautiously along in a canoe, they landed upon an island on the very lip of the fall. "I peered down into a large rent which had been made from bank to bank of the broad Zambesi, and saw that a stream of water of a thousand yards broad leaped down a hundred feet and then became

suddenly compressed into a space of fifteen or twenty yards. The entire falls are simply a crack made in a hard basaltic rock from the right to the left bank of the Zambesi, and then prolonged from the left bank away through thirty or forty miles of hills."

In his fear of exaggeration, the discoverer curiously minimised the stupendous size of this African Niagara. On a second visit he calculated the width of the river where it dashed over the precipice as more than a mile, and that it dropped a full 400 feet into the chasm below, a chink scarcely 100 feet wide between perpendicular cliffs. Seething in this abyss, the waters escaped through a narrow fissure (only thirty yards across) near the left bank, at a right angle to the falls. This fissure runs straight for 100 yards, then turns abruptly to the west, and again to the east, for two stretches of 1,000 yards in length; once more the gap trends westward, then finally straightens itself. The top of the zigzag cañon is on a level with the upper course of the river, the water swirling round its base hundreds of feet below the spectator's eye. The mass of water as it falls breaks into a thick "fleece whose whiteness gives the idea of snow," and contrasts exquisitely with the red soil of the hill ridges, rising 300 or 400 feet high in the background, and the intense verdure of the vegetation which clothes the dark brown of cliffs and islands. So lovely is the scene that Livingstone declares it must have been gazed upon with rapture by angels in their flight.

When the river is in flood the columns of vapour,

sometimes six or eight in number, can be seen more than twenty miles away. Double and treble rainbows hover in the spray above the darting myriads of "aqueous comets" into which the snowy water is shattered. The oldest name of the fall was "Place of the Rainbow," but the Barotse called it "Mosioatunya" (smoke does sound there). The spray falling back in perpetual fine rain induces a marvellous wealth of vegetation, and Livingstone planted several fruitstones on the island from which he first beheld Victoria Falls, now known as Garden Island.

The rest of the journey was comparatively uneventful. Livingtone, feeling that the Zambesi really provided his long-desired highway to the coast, returned to England in 1856, where he immediately found himself a "lion." But nothing turned him aside from his master idea—the suppression of the slave trade.

CATARACTS AND LAKES

Two years later we see him back in Africa as H.B.M. Consul for the East Coast and its unclaimed interior. During the six years that he held this appointment history was made. Having already exploded the theory of the "sandy torrid zone," he now added greatly to our geographical knowledge. The Kebrabasa rapids on the Zambesi were examined, and a road for portage beside them decided upon. Its great tributary, the Shiré—which had baffled Portuguese officialdom—was explored, and Lakes Shirwa and Nyassa were found and navigated. Then Livingstone ascended the Rovuma, and anticipated

a way to the lake from its headwaters. He passed the Murchison cataracts, blocking the Shiré for miles, and began the road there. Moreover, the Universities Mission was established in the Shiré Highlands by several enthusiastic clergymen, with Bishop Mackenzie at their head.

All this time Livingstone himself laboured incessantly on exploration and surveying. He also visited his old friend Sekeletu, to take home the Makololo, who had been temporarily settled near the coast; cleared the way for the mission, and constantly acted skipper on the wretched little water-logged steamer, the *Ma-Robert*, which ended its brief, ignominious career by settling down upon the river-bed.

But the results were disappointing. Slave-traders hastened to take advantage of the new openings, and, unopposed by the Portuguese, pushed from both sides into the very centre of the continent, turning the whole basin of the Nyassa and Shiré into a hunting-ground for their infamous traffic. When the missionaries ascended the river they found villages burned, crops destroyed, and mouldering corpses—or dying skeletons, many of them still wedged in the cruel slave-yoke—thickly scattered along the roads and river-banks. Two or three years of raiding and intertribal wars had laid waste one of the fairest districts of Africa.

Struggling against these horrors, and the prevailing famine, the Bishop and his principal coadjutor laid down their lives. The rest of the mission was soon recalled to the coast. Resignation and disease thinned the numbers of the Government expedition. The excellent new steamer

drew too much water to take far up the river, though she did some useful work. Livingstone's private venture, the *Lady Nyassa*, sent out in sections for transport to the lake, had not been conveyed past the Murchison Falls when orders came from England for the withdrawal of the whole party. The Portuguese refused to grant right of way up the Zambesi, or to suppress the slave trade, and further attempts in that direction seemed useless.

A second time, therefore, Livingstone found his undertaking wrecked. Evil, rather than good, seemed to follow his efforts in the cause of humanity. But the bitterest blow of all fell when he laid to rest, upon the shores of Zambesi, the faithful partner of his opening career, his beloved wife, Mary Livingstone, another martyr to the sacred cause.

Discouraged, almost heart-broken, he left Africa again in 1864. Failing to find a purchaser for his cherished *Lady Nyassa*, from whom such great results had been hoped, he actually steered the tiny craft himself across the breadth of the Indian Ocean to Bombay, with the help of only two or three companions. When these fell ill, he took up their work as if to the manner trained, and after a somewhat lengthy voyage carried her without the least miscalculation safely into Bombay Harbour.

LAKE BANGWEOLO AND LAKE MOERO

During the year that he stayed in England, the explorer wrote and published his second volume of travels, describing the experiences of the last six years. Then, with the empty title of British Consul to the chiefs

of Central Africa, he started upon his last and longest journey. This was undertaken almost entirely at his own cost, but proved by no means the least valuable, though the explorer was pitfully hampered and delayed by lack of sufficient transport and supplies, and by the unsatisfactory nature of his native escort. They ascended the Rovuma on foot, and struck westward to Nyassa, where Arabs with their white-sailed dhows were now carrying on a brisk traffic in slaves. Crossing the lake they marched to the Chambezi (the head waters of the Congo), which flows through Lake Bangweolo, thence under another name to Lake Moero, and across that lake to the Lualaba.

After discovering these important lakes and their affluents, Livingstone paid his first visit to Lake Tanganyika, journeying to Ujiji with a party of Arabs. Here he had the annoyance of finding that the stores, which were to be sent thither from Zanzibar to form a reserve depôt, had been plundered on the road. Still in company with the traders, for his own party had been reduced to a handful by desertions, he travelled about Manyuema—on the west of the lake—and down the Lualaba as far as Nyangwé. At length he left the cannibal country, revolted by the cruelties of the slavers, among whom was the since notorious Tippu Tib, and struggled back a mere skeleton, to Ujiji, hoping to pick up fresh supplies there. But the principal merchant had already disposed of these and refused all compensation. When almost in despair at this fresh misfortune, he was roused by the approach of a large caravan, bearing the American flag, with a white man at its head. How deep was his gratitude to learn

that this was a "relief expedition," sent out on his account, led by the young Anglo-American Stanley. "Never," he writes, "was I more hard pressed; never was help more welcome."

Adequate food and clothing, and intellectual companionship, soon restored his failing spirits, and to a certain degree his shattered health. He and Stanley together explored the north end of the lake, finding the Rusizi river running *in* but no northward outlet. The new-comer could not persuade Livingstone to seize this opportunity of returning home to recruit. The task he had set himself was not yet complete. Three years of wandering in the Manyuema country had not solved the outfall of the Lualaba and its companion streams. Livingstone, in his long solitude, had gradually evolved the idea that these were the remotest sources of the Nile. Could he prove this, his highest ambition would be gratified. He returned to the fascinating task with revived energies.

LIVINGSTONE'S LAST JOURNEY

Stanley was able to forward from the coast a well-equipped expedition of trustworthy porters, riding-donkeys, and all necessary stores. Everything now promised success in settling the question. But, unhappily, Livingstone's splendid physique began to break down under the drain of fever and dysentery, brought on more frequently than before by the terribly marshy country through which he passed. This he describes in vivid language. The streams of the Congo basin do not

take their rise in springs, but in "oozing bogs" upon the hill slopes. Storms soak the shallow layer of peaty soil down to its impervious bed, and turn it into a kind of muddy landslip. Retained, however, by the narrowing valley, only the most liquid part of the bog can ooze through. A series of streams are gradually formed, fed from similar marshy valleys along their course, until they unite into a river. These bogs are covered with vegetation, tufts of coarse grass, and clumps of bushes, among which the traveller flounders: sometimes on a fairly solid surface, at others sinking to ankle or knee, according to the depth of the sloppy earth above the clay.

The north of Lake Bangweolo was found to be only one vast sponge, intersected by countless streams. This being the rainy season, everything was saturated. Though his porters did their best, it was impossible to keep the invalid dry or properly fed. At length his increasing weakness obliged them to make a litter, on which he was tenderly borne till the end of April. During the final day's march the dying man was scarcely conscious. (Entries are posted up to April 27th in his notebook, and the last observation for latitude is dated April 9th.) Some of his attendants, hastening in advance, made careful preparations for his arrival in Tshitambo's village. They built a raised bed to lift him on to, and aired the hut with a bright fire. There he remained all the next day, somewhat revived by the rest and warmth, but not equal to receiving the chief's proffered visit. Late at night he called Susi to bring some hot water and the medicine chest. From this he feebly took a dose, and then dismissed the boy. At four o'clock in the

morning his personal attendant woke to find his master kneeling by the bedside, cold and dead. He had quietly passed from this life in the attitude of prayer.

A great responsibility now fell upon these devoted servants, and their faithful fulfilment of it proves that the African is capable of rising to higher things. They resolved to embalm his body, and carry it and all his effects back to the coast. An inventory was made, and everything carefully stowed in tin cases. Susi and Chuma, two old converts of the Nyassa Mission, assumed command. The chief, Tshitambo, gave every help, and with his whole following attended the ceremonies, mourning the dead in native fashion. One of the mission boys, Jacob Wainwright, read our English Burial Service from the Prayer-book which Livingstone always used. The heart and other remains they buried under a tree, carving his name upon the bark. For fourteen days the emaciated body was sun-dried in a specially built hut, treated with salt and brandy—their only preservatives. It was then wound with linen, and enclosed in a bark cylinder. This was again packed in sail-cloth, tarred outside, and lashed to a pole which could be carried by two men in relays. The grave was fenced round, and the chief has nobly kept his promise of guarding it from desecration.

Then the sad procession started for Zanzibar, and pluckily overcame all difficulties. Six months later they met in Unyamwezi a second relief expedition sent by the Royal Geographical Society under Lieutenant Cameron. After a good deal of discussion, however, they carried out their original programme, disarming opposition among the superstitious coast tribes by an ingenious ruse.

When Bagamoio was reached, English hands received the precious burden, which was conveyed reverently home. Susi and Chuma had the privilege of attending in Westminster Abbey the last obsequies of David Livingstone, amid the mourning of a nation.

At Ilala, beside the last of the five great lakes which he made known to us, rests the heart of the most illustrious African explorer, beneath a pillar which will be a shrine for future generations.

But Livingstone's real monument is the realisation of his dreams. He turned the first sod; others have reaped the increase. His epitaph is inscribed upon the very face of the earth. The Zambesi lies open to commerce and religion. The paralysing slave-trade has been extirpated. Where he wandered alone, now stretch productive British settlements, the natives dwelling securely under the Union flag. A three days' railway journey from the Cape carries tourists to the spot whence Livingstone gazed with awe upon the glorious Falls, after months of weary travel; and a bridge springing across the chasm will presently extend the route to Tanganyika. Great coal-mines and iron-fields are now brought to light; fabulous wealth of gold is in process of extraction. And from the Victoria Falls themselves will be drawn the electrical energy which must soon convert this long-neglected region into one of the vast industrial centres of the modern world.

Note.—The view of the Victoria Falls illustrating the chapter is reproduced by kind permission of the British South African Company, from a photograph taken by Mr. F. W. Sykes, of the North-West Rhodesia administration.

CHAPTER X

AFRICAN ABORIGINES

WHEN Hanno the Carthaginian braved the equatorial "belt of fire" and returned from his adventurous voyage unscorched, he hung as votive offerings in the temple of Juno the hairy skins of African aborigines, called by the interpreters gorillas.* These shaggy people, so the bold mariners reported, climbed trees and precipices with remarkable agility, and hurled down rocks from the summit upon their pursuers.

Hundreds of years later an Essex sailor was wrecked upon the West African coast, taken prisoner by a wandering band of desperadoes, and forced to accompany them through the depths of the vast tropical forest. There he also encountered the hairy inhabitants, long supposed to be a classical myth, like the pigmies of Herodotus. But when he made his escape and returned home his account of huge, human-looking apes was received with all the incredulity due to travellers' tales.

In October, 1855, a young American sailed for Africa, with intent to explore the equatorial regions of that

* "Cutes argumenti et miraculi gratia in Junonis templo posuit." —Pliny.

continent and seek the gorilla in his native haunts. Paul du Chaillu's name is now familiar to all as traveller and naturalist, the lover and interpreter of the denizens of the Great Central Forest that appeal to our sympathies in his fascinating volumes.*

Old King Glass of Mpongwé was dead, and his dutiful subjects—who had long desired the event—wept and wailed for him throughout the six days prescribed for royal mourning. His corpse having been secretly interred, and his successor as secretly chosen in full conclave of the elders, their choice was made known to the populace. The new monarch, strolling all unsuspiciously along the shore, found himself suddenly surrounded by a howling mob. They spat upon, hustled, and struck him, and pelted him with refuse, meanwhile reviling him and all his relatives and ancestry to the most remote generations. Then they dragged him to the king's residence and heartily cursed him again. After this there was solemn silence till elders and people in chorus hailed him king and took their primitive "oath of allegiance," ceremoniously crowning him with the regal emblem, the *top-hat* of Mpongwé. The new king, decked in a red garment, had to spend six fatiguing days and nights welcoming and feasting his subjects and all strangers who chose to offer their congratulations. *Le roi est mort, vive le roi*, holds good in Africa as elsewhere.

Some of the calico-clad, straw-hatted tribesmen were now free to escort the American on his tour, and paddled him away in a canoe thirty-five feet long, dug out of a

* *In an African Forest*, Du Chaillu.

single tree. All these negroes are traders by instinct and custom. Many tribes succeed each other up the banks of the rivers, the natural highways, and exact toll or "commission" upon all goods passing through their country. Consequently a very small percentage, if any part at all, of the price paid by the actual purchaser, ever reaches the up-country native who sends ivory or ebony to the coast.

A travelling *ntangani* (white man) was an agreeable novelty, for neither factors nor missionaries went far inland. Young Du Chaillu was received with cordiality, and passed on from one "king" to another under the covering title of his protector, as "Dayoko's white man" or "Mbene's white man." The chief is always on his mettle to see that proper attention is paid to his *ntangani*, and gains much prestige among less fortunate neighbours by the possession of such an august visitor, who is generally regarded with awe as a "spirit" from beyond the *big water* (Atlantic). Let the traveller only have experience enough to refuse extortions, and skill with the rifle to knock a small bird off a twig: then great will be his reputation.

The first traces of gorilla were found among the forest-clad slopes of the Sierra del Crystal. Fragments of chewed sugar-cane lay about, and unmistakable foot-prints in the soft earth made Du Chaillu's heart beat high as he started in chase of this powerful and cunning monster, never before hunted by a white man.

Suddenly, as they crept along in breathless silence, guided to where the animals were feeding by the crackling and rustling of branches, the woods rang with the

tremendous barking roar of the gorilla. A gigantic male raised himself erect and faced them. "Nearly six feet high, with immense body, huge chest, and great muscular arms, with fiercely glaring large deep grey eyes, and a hellish expression of face, which seemed to me like some nightmare vision; thus stood before me this king of the African forest." *

The roar is an extraordinary and awe-inspiring sound, gradually changing from a sharp bark to a deep growl like the roar of distant thunder—for which it is occasionally mistaken. Then he beat his breast defiantly with his great fists till it resounded like a bass drum, and the hair on his forehead twitched convulsively in his rage. So, roaring and drumming, he advanced till about six yards away, when the hunters ended his career by a simultaneous discharge. For, they say, unless you kill the gorilla he will kill you, such is the strength and fury of a wounded "wild man of the woods."

The young ones ran away with great speed, whether on all fours or upright. "Running on their hind legs, they looked fearfully like hairy men; their heads down, their bodies inclined forwards, their whole appearance was like men running for their lives." Even their cry "had something human in its discordance." The native superstition that they are often "possessed" by human spirits did not seem unnatural or far-fetched among such surroundings. In fact, by some freak which the folk-lore student may interpret, many of the European "were-wolf" stories are attached to these inhabitants of Central Africa.

* *Equatorial Africa*, Du Chaillu.

Du Chaillu got several baby gorillas alive, and tried to bring them up for zoological specimens. But they proved savage and morose, quite untamable, and none of them lived long enough to be sent home. He had, however, many consolations for this disappointment, not the least being the discovery of two other large, unknown apes in the course of his travels.

The first of these, the *nshiego-mbouvé* of the natives (classified by its finder as *Troglodytes calvus*, or bald-faced chimpanzee), makes itself a quaint shelter of branches about twenty feet above the ground. They are closely woven together and tied into place with vines, but the shelter is deserted for a new one directly the leaves wither. The builder sleeps with its feet on a lower branch, and its head well up under the domed roof, which throws off the rain, clasping its arm round the tree trunk. It is bald-headed, over four feet long, with black skin and thin, short, black or greyish hair upon its body. On one occasion a youngster was caught, whose face was absolutely white. This greatly tickled the hunters. "Look, Chelly!" they said, laughing, "look at your friend. Every time we kill gorilla you tell us, 'Look at your black friend!' Now, you see, look at *your* white friend! He has got straight hair, just as you have. See white face of your cousin from the bush!" But the good-humoured fellows did not mind a bit when the American turned the laugh against them with, "When he gets old his face is black; and do you not see his nose how flat it is, like *yours?*"

Tommy, as the new-comer was named, grew tame at

once, and became a source of great interest and amusement to the party, running in and out of their huts like a spoilt child. He was most intelligent and imitative, but an inveterate thief of bananas and all such delicacies. He shared every meal, and insisted upon tasting his master's coffee, but indignantly rejected it if without sugar. His little sleeping-pillow accompanied him on all his rambles, and if he mislaid it his howls disturbed the camp till it had been searched for and returned to him. Unfortunately he, too, died after five months of happy captivity.

The second great simian was the *koola*, or *kooloo-kamba*, so called from its curious cry, "koola-koolo!" a full-grown male specimen of which he secured upon another red-letter day. This animal has a facial development much resembling that of man, a comparatively high forehead and broad muzzle, with whiskers meeting under the chin, and an almost human form of ear. Indeed, it is like an Eskimo or a Chinaman. In height it is over four feet, and is as powerful as the ordinary chimpanzee. Being shy and retiring in its habits, it is seldom met with even by the negroes.

Smaller monkeys, swinging and chattering among the upper branches of the trees, are in danger of being swooped upon by the formidable *guanonien*, an eagle about as large as the American condor. Beneath the gigantic tree in which a pair of these eagles built their nest, more than a hundred different-sized monkey skulls were counted, victims to the voracious "leopards of the air"—their native nickname.

Natural history, however, was not the explorer's only object. He wished to make acquaintance with sundry of the native tribes, especially with the cannibal Fans, of whom horrible stories were rife along the coast. Nor did he find these reports by any means exaggerated, when he had persuaded some of the reluctant Mbondemo to guide him amongst their dreaded neighbours. The mountaineer Fans were a fine, muscular people, tall, well made and active, intelligent looking, and of a lighter shade than the coast tribes. Their teeth were filed to a point and blackened,* their hair plaited into tails and strung with beads, or formed into long queues with tow intermixed. Some wore caps of feathers and a skin hung round their bodies. All were well armed with knife, spear, axe, and a bullet-proof, elephant-hide shield. They also use a very strong bow to shoot both plain arrows and poisoned darts, and some are very dexterous in hurling a tomahawk, like the North American Indians. They are clever blacksmiths, all these weapons being of local production; and finish their well-tempered blades (smelted from iron ore in the hills) with gracefully chiselled designs. The tribe had a few guns, obtained from traders for hunting purposes, but generally kill their game—elephants included—by piercing them with many spears. They are the most martial people of the whole country, enterprising and numerically flourishing, but luckily not aggressive. Their cannibal practices evidently cause no physical deterioration, and their domestic customs seem to be on a higher plane than is usual in these parts.

* This habit was common along the west coast, even among non-cannibal tribes.

But the ghastly relics of their feasts, the human bones lying unheeded about the villages, destroyed an outsider's appetite! Du Chaillu refused to accept any *cooked* food whatsoever at their hands for fear of what the pot might previously have held. He saw dead bodies brought in for division, and hurriedly withdrew before the orgies began. The corpses of their great men are considered sacred and receive burial; nor do they eat their own relations, but trade them away for the dead of some neighbouring village. They also purchase slaves for their feasts. Ordinary food is plentiful, manioc (cassava), plantains, yams, gourds, and sugar-cane, with red pepper as a digestive; so cannibalism is a mere gastronomic luxury.

Du Chaillu never succeeded in getting very far to the east. Provisions were scarce throughout this wilderness, and he met with opposition from those natives to whom a white man was still an object of mystery, or who dreaded lest he should interfere with their monopoly of trade. Where settlements are far apart a kind of *dak-bungalow* or travellers' house (called locally *bando*) is erected at intervals, and kept in good repair by those using the accommodation.

Wars are very frequent among all the native tribes, and break out upon the slightest pretext. As every man is much married—according to his wealth and rank—and every father-in-law helps his daughter's husband in an emergency, whole districts may turn out to back up the quarrels of a powerful chief. The villages are therefore planned as a kind of stockaded fort, on either side a central street whose gates are securely fastened at night.

The *palaver*-house or town-hall, where receptions and discussions of every kind take place, is the largest building, and every clan has one *mbuiti* or idol, which is an object of special veneration provided with an extra-sized temple. The private fetiches, or sacred things, of these very superstitious people have each a miniature hut (the *alumbi* house) built for them beside the owner's house.

One day Du Chaillu came upon a collection of diminutive dwellings out in the woods, and learned to his extreme surprise that these were not fetich-houses but a village of negro dwarfs known as Obongos. These are met with in many parts of the forest, and are patronised by their bigger neighbours, as the dwarf men are expert trappers of wild animals, which they trade for a few necessaries. The tiny huts were about four feet high and wide, made of branches and thatched with leaves. The inmates were shy and nervous, so he only succeeded in seeing a few women and one young man, as all the others fled into the thicket directly they heard strangers approaching. A nomadic life of miserable isolation is led by these little people, who average from 4 feet 4 inches to 5 feet high, and subsist chiefly upon roots, nuts, and forest berries.

Du Chaillu could now testify to the real existence of cannibals, pigmies, and gorillas—all considered by practical men as equally legendary beings. Great controversies arose when his strange discoveries were first made public. But the correctness of his observations has been completely proved by the experiences of more recent explorers.

CHAPTER XI

THE SECRETS OF MASAI LAND

MASAI LAND has been a very hard nut for African travellers to crack.

The fine, warlike nation inhabiting a large stretch of country between Kilima Njaro and Victoria Nyanza, being more numerous and powerful than any other race in E. Africa, resolutely maintained an attitude of splendid isolation. They intermarried with no neighbouring tribe. No white man might enter their territory. Even native traders were only permitted to pass through as a special favour after gifts of extravagant "hongo" (blackmail). At the same time, they claimed full liberty for their own war-parties to raid in all directions.

The result was that whole tracts of fertile country outside the Masai border became depopulated, the remaining inhabitants grouping themselves inside fortified strongholds among the hills and tangled thickets. Missionaries, geographers, and merchants strove in vain to break through the jealously guarded barrier. Such an undertaking promised to be too costly in lives and money, for the spears of these redoubtable warriors were as sharp of edge as their rapacity.

In 1882, however, the Royal Geographical Society,

which had long cast a wistful eye upon this *terra incognita*, despatched thither an expedition with purely scientific aims. Mr. Joseph Thomson, who had already made two exploring trips, was chosen for the bold venture, and a sum of £3,000 was voted to defray expenses.

His instructions were to explore the already celebrated Kilima Njaro, whose flora and geological formation had never been examined; to visit Mount Kenia, the snow-capped peak which at rare intervals tantalisingly unveiled itself to the north-east; if possible, to reach the Baringo lake, of which Speke and Grant heard rumours years ago; to decide whether there were any practicable route through this country to the eastern shore of the Victoria Nyanza; generally to observe and report upon all that passed beneath his eye—tribes, fauna, climate, geology.

How the young explorer—he was but twenty-five years old—successfully executed this varied programme; how he patiently bored his way through sterile lands and hostile natives with many moving incidents and escapes from man and beast—for Joseph Thomson proved a mighty hunter when the food supply ran low; how he revelled in glorious upland scenery, unmapped lakes and virgin forests; all this the reader may follow with riveted attention through the pages of his own glowing narrative.* Space allows us here to touch upon a few points only of special note in the wide field of new interests opened to Europeans by his romantic and eventful journey.

* *Through Masai Land*, by Joseph Thomson.

We will picture him, then, starting from Mombasa with a motley crowd of porters—the tsetse-fly prevents the use of baggage animals in these parts—bearing loads of beads, wire, cloth, ammunition, and all the traveller's personal stores and scientific instruments. The Zanzibar carrier-market being depleted by several large expeditions already organised (including one by the German, Dr. Fischer), Thomson had to recruit all the vagabonds that offered themselves, under a few headmen of doubtful antecedents. It was a dangerously weak and untrustworthy escort for so risky an undertaking, but with tact and courage worthy of the immortal Father O'Flynn he shepherded his motley rascals along—

> "Coaxin' on aisy ones,
> Lifting the lazy ones on wid the stick."

He showed a happy combination of velvet glove and iron hand, which not only enabled him to take his company virtually intact across the inhospitable frontiers of the dreaded Masai, but carried himself and them safely through all the difficulties and dangers awaiting them beyond. Fortunately he had found a valuable assistant in James Martin, a Maltese sailor, who has since held official position in British East Africa, a thoroughly good fellow and a most satisfactory companion. Attempts at desertion were baffled by constant watchfulness night and day, the ten best men available having been armed and drilled as *askaris* (soldiers), with orders never to lose sight of a straggler.

KILIMA NJARO

And now the Tavetan forest is reached, a flourishing paradise of cool shades and murmuring streams flanking the course of the river Lumi, which springs, full-flood, from the base of Kilima Njaro. Within these pleasant fastnesses the Wa-taveta dwell secure from Masai attacks, their compounds hidden among impenetrable thickets and approached by only one narrow, winding path. They are a peaceful, hospitable tribe, honest and agreeable in manners; so here the caravan may rest itself and reorganise its goods to suit Masai tastes. Its leader, temporarily relieved from anxiety, fulfils the first part of his mission with his accustomed energy, tramping the country in all directions, through forest glades and open park country of amazing fertility.

"For many days we have been at the base of Kilima Njaro, and yet not a glimpse has rewarded our frequent attempts to view its cloud-piercing heights. We have begun almost to ask ourselves if we are, after all, to be doomed to the mere 'mental recognition' ascribed to Rebmann. . . . Happily such is not our fate. The 'Mount Olympus' of these parts stands forth revealed in all its glory fitly framed by the neighbouring trees. There is the grand dome or crater of Kibo, with its snow-cap glancing and scintillating like burnished silver in the rays of the afternoon sun; and there, on its eastern flank, as a striking contrast, rise the jagged outlines of the craggy peak of Kimawenzi. What words can adequately describe this glimpse of majestic grandeur and godlike

repose! We can only stand speechless with feelings of awe. But our opportunity is brief. The veil has only been temporarily lifted, and now huge, fleecy-white cumulus clouds roll and tumble along the sides of the great mountain till only the black pinnacle and the glittering dome are seen projected against the pure azure, and hanging apparently in mid-heaven. . . . In a few seconds the whole scene has vanished. . . . The shining peak of Kibo thus seen, apparently cut off from all earthly connection, is a marvel of ethereal purity, and the awestruck Masai have named it Ngajé Ngăi (The House of God)." *

Subsequently Mr. Thomson rounded the western side of the mighty mountain, verifying its volcanic origin, and ascended to a height of 9,000 feet. But after this he had to endure bitter disappointments and heart-breaking delays. Dr. Fischer's caravan, in company with a trading party, had unfortunately preceded his on the Masai border, and had come to blows with the natives. Revenge upon the next white man was to them only natural. After mulcting him heavily in *hongo* (by the active co-operation of his traitorous interpreters), the warriors rose to oppose his passage. A midnight retreat was the only course left. Chagrined, but undaunted, he paid a flying visit to the coast, to obtain additional porters and supplies, making—from lack of water—one record march of seventy miles without rest! Thus reinforced, he returned to Taveta, where his men had lived in clover under Martin's care, and struck up an alliance with a

* *Through Masai Land*, p. 118.

Pangani caravan about to take the same route. This combination made a formidable party, and the Masai allowed it to peaceably cross their threshold, five long months after the first departure from Mombasa.

MASAI CEREMONIALS—THE GREAT WHITE LYBON

Upon this occasion most of the young men, the *El-moran* (warriors), were absent on cattle forays; so the dignified elders of each district, the married men, came in to carry out negotiations. When ceremonious greetings have passed, the leaders seat themselves in opposite groups, and a stately palaver takes place by means of the interpreters, in the course of which formal permission to pass through the land is asked and granted. No Masai omits to extort as much blackmail as the long-suffering traveller can be prevailed upon to part with; but as each kraal of *El-moran* puts in its separate claim, and enforces it, great economy results from arriving in the absence of the war-parties.

The scene is much enlivened when the young bloods do the business. Directly camp is pitched a strong, high thorn *boma* or zeriba is formed, inside which all the goods are stocked and carefully covered. A distant war-chant announces the warriors' approach, and the trader takes up his position, a bunch of grass in one hand, his gun in the other—to signify that he desires peace but is prepared for war. Then the armed *El-moran* appear, fine six-foot men, bedaubed with grease and red clay, each bearing a broad-headed spear and a shield of bullock-hide, upon which the insignia of his family are painted in coloured

clays. They perform sundry military evolutions, and one of their tribal dances, to duly impress the spectators. Dignified salutations next pass, and the question of *hongo* is talked out with much fluency and decorum. The traveller having provided the due amount of iron wire, chains, beads, and cotton war-dresses, his men fling it into the midst of the Masai, who have laid aside their shields and spears. In an instant, with a blood-curdling yell, the warriors precipitate themselves upon the spoil, and fight till they have divided it, often inflicting severe wounds with knobkerries to maintain their respective claims.

This matter settled to their satisfaction, the *El-moran* enter the camp, insolently pushing aside the sentry, and wander about at their own free will, no one daring to remonstrate, much less to punish a thief caught red-handed. Privacy for the stranger there was none. His tent was invaded every hour of the day; the warrior swaggered in, and deposited his greasy, odoriferous person where he chose. Then he ceremoniously exchanged the usual greetings, and proceeded to examine everything most *un*ceremoniously. In some places Mr. Thomson's hat was taken off, his hair twitched, his nose pulled; he was even ordered to remove his shoes and stockings that they might see his white toes. The demand for a present never ceases, "Jogon? mashetan!" (Do you hear? a string of beads!), which of course is unmurmuringly handed to him. Such are some of the amenities of travel among these interesting savages! And yet Mr. Thomson reports that he learned in many respects to like both men

A Masai warrior in full war-dress. The remarkable head-dress is made of ostrich feathers stuck in a band of leather, and the curious leg-streamers of monkey hair. He has been pithily described as possessing the form of Apollo and the face of a fiend. At the present day he does railway building instead of raiding.

and women, as he became accustomed to their arrogance, for their aristocratic manner and air of conscious superiority raised them far above the negro races. Even the small boys in charge of the cattle hustled away the recently overbearing coast porters, who here stood meekly by and took last turn! The men could never lay aside their arms, nor venture outside their precincts for water or firewood except in large parties. To spear a straggling carrier was legitimate sport.

Fortunately, the natives' curiosity to make acquaintance with the first white man who had ever come among them was tempered by respect for his reputation as a great *lybon*, or medicine-man, which proved a complete safeguard to his person, though it involved him in some embarrassing situations. One elderly Masai of high position came with his pretty young bride to beg a potent medicine which should provide them with a "charming little white boy just like the Mzunga," whom they both infinitely admired! The electric battery—an object of awe to all who handled it—had been presented to Mandara, a powerful Wa-chaga chief. So a dose of Eno's Salts was prepared with appropriate incantations, and the suitors sipped it in some trepidation; but they were not thoroughly satisfied till he had added to the charm by *spitting* freely upon them!

"Spitting," remarks Mr. Thomson, "has a very different signification with the Masai" (and some other African tribes) "from that which prevails with us. With them it expresses the greatest goodwill and the best of wishes. It takes the place of the compliments of

the season, and you had better spit upon a damsel than kiss her. You spit when you meet, and you do the same on leaving. You seal your bargain in a similar manner. As I was a *lybon* of the first water, the Masai flocked to me as pious Catholics would do to springs of healing virtue, and with the aid of occasional draughts of water I was equal to the demand. The more copiously I spat upon them the greater was their delight; and with pride they would retail to their friends how the white medicine-man had honoured them, and would point with the greatest satisfaction to the ocular proof of the agreeable fact." *

TO KENIA AND LAKE BARINGO

Whilst accumulating these experiences the caravan had been pressing slowly northward, from plateau to plateau of ever-increasing elevation and every variety of scenery. Sometimes the men were in danger of perishing by thirst or starvation; at others they luxuriated in plenty. On the slopes of the numerous solitary mountains, or the long ranges which bordered the plains, almost permanent Masai encampments were to be found, safe in the possession of pasture and water. In the lowlands the drying up of streams forced them to be migratory, so that for days together no natives were encountered. At fertile spots halts had to be made to purchase food and other supplies, a tedious business for the ardent explorer, though often presenting a comical aspect, especially when donkeys were in question. "What a race would ensue if one of these venerable animals was seen in the dis-

* *Through Masai Land*, p. 166.

tance! How the traders would buckle up their skirts, and, forgetful of years and grey hairs, tear out pell-mell, each one shouting to the owner to keep it for him, as they exhibited rich gifts or preliminary *douceurs*, the acceptance of which settled who was to have first chance! If the owner showed signs of hesitation, then would come the supreme scramble. Some would seize the rope which held the donkey and fight for possession. Others would lay violent hands upon the creature's ears; others would add fresh ignominy to its lot by grasping its caudal appendage." *

Africans have no idea of the value of time; the purchase of a single bullock would occupy two hours of incessant haggling; and the bargain was sealed by the Masai spitting upon his animal, while the trader treated his wire and beads in like manner.

Leaving behind them the beautiful, forest-clad ridges of Kapté, comparable to an English park planted with masses of tropical flowering shrubs, they hurried across the dangerous uplands of the Wa-Kikuyu, a cowardly, treacherous race, the hereditary foes of the Masai, and were glad to reach, on September 29th, the shores of the picturesque Lake Naivasha. Here, also, Dr. Fischer had preceded the English traveller; but this was his furthest point, as his carriers struck and compelled him to return to the coast, when only six days' march from his objective —Lake Baringo. Whilst his caravan was reassembling, Thomson surveyed the lake and made adventurous journeys to places of interest in the neighbourhood.

* *Through Masai Land*, p. 162.

Scaling the extinct volcano of Donijo Longonot ("mountain of the big pit"), he sat astride the wall of the cone, and gazed, fascinated, into the crater's depths, 2,000 feet below. Dongo Buro ("steam mountain") merited a longer examination than he could give, for the vapour escaping with the puff of a steam-engine from its famous "steam holes" came from cracks in ground too hot for bare feet to stand upon—evidently an uncooled lava bed. The many warm springs or streams met with in this region speak of recent volcanic action.

Now was begun one of the most risky experiments of the whole journey: Thomson resolved to make a détour *viâ* Mount Kenia on his way to Lake Baringo, though this would compel him to pass through some of the most aggressive and turbulent of the Masai tribes. Remonstrances were unheeded. Thirty chosen men formed his bodyguard, and an equal party of traders, fired by his enthusiasm, accompanied them. The region traversed by skirting the newly discovered range of Aberdare Mountains (which he named in honour of the President of the Royal Geographical Society), and then crossing the well-watered tableland of Lykipia to the base of Kenia, was worth a struggle. But an unforeseen obstacle had arisen in the shape of a terrible cattle plague which strewed the neighbourhood of the kraals with putrefying bodies, spreading contagion far and wide. Opinions were divided among the ignorant and superstitious natives. Was the white *lybon* responsible for this unprecedented calamity; or was he a heaven-sent messenger to stay its ravages? By means of effervescing

draughts, and by cleverly manipulating two false teeth, he managed to keep them sufficiently impressed with his occult powers. The party was, however, stripped of all its goods, and with no food save diseased cattle to be obtained the outlook grew serious. Permission to ascend the mountain was clamorously refused, and Thomson had reluctantly to content himself with having at least gazed upon the unveiled glory of this hitherto elusive vision.

"Presently, as the garish light of day melted into the soft hues and mild effulgence of a moonlit night, the 'heaven-kissing' mountain became gradually disrobed, and then in all its severe outlines and chaste beauty it stood forth from top to bottom, entrancing, awe-inspiring —meet reward for days of maddening worry and nights of sleepless anxiety. At that moment I could almost feel that Kenia was to me what the sacred stone of Mecca is to the faithful who have wandered from distant lands, surmounting perils and hardships that they might but kiss or see the hallowed object, and then, if it were God's will, die."* One evening the expedition silently dissolved into the forest depths, and fled through uninhabited country with all possible speed. Imagine the explorer's rapture when on emerging from a tangled thicket a week later the mysterious Lake Baringo lay outspread before him, gleaming like a mirror in its mountain-setting many thousand feet below. This is, he declares, the most wonderful lake scene in Africa, unrivalled for beauty, grandeur, and variety. Njemps and its simple people was reached, and Masai Land with

* *Through Masai Land*, p. 222.

all its troubles left, for the present, behind. Its great natural features had been visited and described; the unknown was robbed of its secrets.

VICTORIA NYANZA AND THE CAVES OF ELGON

Only one more stage of the journey remained to be accomplished, and that by no means the easiest. The three last caravans which penetrated to Lake Victoria Nyanza had been decimated, but Thomson's now devoted adherents raised no demur. Starting on November 6th he made his way across Kavirondo, and after many vicissitudes stood on the shores of the great inland sea. It was a supreme moment, this meeting with the Ultima Thule of his hopes, and the men thoroughly appreciated the fact. Plunging knee-deep into the water, they fired off volleys in delight; then rushed back to throng round their master and congratulate him by vigorous hand-shaking.

Return through the same country was impracticable, so he swerved northward as far as Mount Elgon, or Masawa, a magnificent pile some 15,000 feet high, its perpendicular cliffs pierced by the extraordinary caves whose origin baffles the savant to this day. The investigation of these virtually concluded Mr. Thomson's discoveries. A few days later he was nearly killed by a wounded buffalo. Fever and dysentery (caused by scarcity of good food) seizing him soon afterwards, he had to be carried by his sympathetic followers most of the way to the coast. He learned, however, of a still larger lake, the Samburu of the natives, lying further

north, bordered by two predatory tribes who were able to defy even the Masai—the Wa-suk to the east, and the Elgumi (some of whom are since known as Turkana) to the west of the lake.

The spirit of enterprise triumphed, however, over bodily weakness. The indomitable Scotchman determined to round off his exploits by completing his grand tour of the whole Masai country. He therefore regretfully bade farewell in Kapté to the friendly traders, and struck off eastwards across a monotonous plain to the mountains of Ulu. His porters, no longer the very refuse of the earth, but morally and physically reformed—as he had vowed they should be when he first took them in hand—met all hardships with cheerful indifference, and joked over their empty stomachs. They travelled by forced marches southwards through the barren wastes of Kikumbutiu, and the end of May, 1884, found him, with health restored, safely arrived at Pangani, after an absence of nearly eighteen eventful months.

Here we must bid farewell to Joseph Thomson, most tactful and genial of British explorers, taken from us, alas! all too soon. Him we have to thank for the life-history of the splendid Masai warrior, ever ready for the battle, clothed in his full war-paint of red clay, his six-foot naibere with its central strip of coloured cloth, his cape of kite's feathers, his extraordinary head-frame of ostrich or other plumes set in leather, and his flowing leg ornaments made from the hair of the beautiful colobus monkey. Full of the lust of battle, he has left the kraal where he and his fellow *El-moran* live, attended

by their charming *dittos* (young girls), upon an ascetic diet of milk, only varied by an occasional orgy of fatted bullock, devoured flesh and blood together, as the Masai have no salt. Presently, when his years of service are over, he will quit the warrior band, take a wife (or wives), and settle down to a staid old age, solaced by indulgence in vegetable food, fermented liquors, and the use of snuff or tobacco.

Had Thomson's journey been but a short time delayed, he would never have given us his vivid descriptions of the Masai at home with all their primitive habits and customs. For the devastating *rinderpest*, already in evidence, by sweeping away the vast droves of cattle upon which they depended, forced them into a more pastoral existence. Then the division of eastern Africa into "spheres" of foreign influence—Kilima Njaro, with a large slice of Masai Land, falling to Germany, while England absorbed the rest into her vast colonial empire—has wrought many other changes. The unimaginative Europeans sternly forbid war-raids or cattle-lifting, so how can the budding *El-moran* "flesh their spears"? Where Thomson's faithful followers once bore his litter by toilsome stages the Uganda Railway now offers a safe route to the tourist, and carries the blessing of civilisation to the shores of the Great Nyanza.

CHAPTER XII

THE ENGINEER IN THE SAHARA

TWO Saharas claim our acquaintance. The old, illimitable desert, conterminous with North Africa itself; and the new habitable region lying beyond the coast-belt on the south-west of the Mediterranean.

The Sahara with which we are most familiar has stereotyped features. A cloudless sun blazing down upon the desolate monotony of yellow sand that stretches to the far horizon, scattered with white bleached bones of camel and rider who have sunk and died from thirst. Over it often hovers the delusive *mirage*, mocking the half-delirious traveller with visions of cool flowing rivers, or of placid lake reflecting white buildings and shady groves. Or the fatal *sirocco* whirls past, blotting out a whole caravan in one sepulchral mound of stifling sand. Happy the man who need not sacrifice his long-suffering companion, the "ship of the desert," in hopes that its *third* stomach—if memory serves us!—may yet contain a tepid pint or two of the priceless liquid without which he perishes. Should he, furthermore, escape the marauding Arab, his fortunate lot is to fling himself at last upon the emerald grass of a welcome oasis, with its up-springing palm trees and crystal waters.

We know this desert well. It is the Sahara of our nursery pictures and our school geographies.

But of late years many ancient fallacies have been exploded. Maturer knowledge forces us to recognise new facts. The crude colours which impressed our youthful imaginations must be shaded and modified. North Africa does not consist of unlimited Sahara, nor is the Sahara all desert. A brief glance at the experiences of various explorers has shown us this already. In one part of it at least the enterprise of French engineers is altering the very face of the earth. The skeletons are still there—sad relics of distress!—and the *mirage*, and the stealthy robber, and the pillars of whirling sand. But the clumps of date-palms increase and spread apace, the oases are encroaching upon the desert, and fountains of life-giving water take the place of dried-up wells. As civilisation advances the hostile tribes must be brought to order, till a journey across the Sahara will become as safe as the grand tour through Europe. Such is the dream of the future, for those days are not yet.

Many plans have been mooted during the past half-century for supplying this arid region with fertilising streams, or even with moisture-bearing clouds. It was proposed to dig a canal from the Atlantic in order to flood the low-lying centre and turn it into a great inland sea. This project, of very doubtful utility, was finally abandoned upon a survey proving that the desert, instead of being a depression, has a general altitude of several feet *above* sea-level! The careful investigations of Dr. Lenz also demonstrated that this waste of sand

and stone, with its flat or rolling surface, rising into hills 500 feet to 1,000 feet high, its potential quarries and untainted wells, has never—within recent geological eras—lain under salt water. Its barrenness is of comparatively modern origin, and seems to be largely due to the destruction of forests which once covered the western mountains. The dry *wadis* (called *khors* in the east of the Sudan) used to carry brimming floods from the hills to fertilise now bare stretches of plain. The drifting sand itself contains no shells or other marine remains, but has simply been produced through the rocks—denuded by drought of any protective vegetation—crumbling under the rapid extremes of heat and cold to which they are daily subjected. When we recall that some of our travellers found their thermometer stand at 113° in the shade not long after sunrise, and also saw the ground white with frost, we cannot wonder that the stone splits and disintegrates, and is washed away in particles by the heavy rains.

The presence of Roman ruins as far south as Sebka (the salt marshes), where stands a monument dated B.C. 44, and the flourishing inland colonies which Romans and Carthaginians alike possessed, show that this wilderness was fairly fertile and populous within historical times. But the desiccating process is progressive, the climate tends more and more to extremes, and evaporation becomes more pronounced. This is where our ever-ready engineer steps in to arrest the mischief, not by vast and heroic measures, but by ably modifying local conditions.

He binds the drifting dunes together with creeping

grasses, which form a soil for the growth of larger vegetation. He leads existing springs along irrigating channels, and luxuriant gardens and palm groves magically follow their course. Most marvellous of all, this modern Aladdin bores patiently down into the dry, hot sand, and lo! a great river gushes forth, and the aspect of the desert is changed! When, in 1856, the sand-drill of M. Jus produced a flow of nearly a thousand gallons per minute (fittingly named "The Fountain of Peace") the vexed question might be considered practically solved. Thirty years later one district alone of Algeria boasted over six hundred artesian wells, the bulk of them in the control of natives. Not only are dried-up wells restored, but new oases are formed in the very heart of the desert. For an apparently inexhaustible reservoir of pure water is everywhere to be tapped.

In districts where this supply lies fairly near the surface industrious members of the population have long taken advantage of the fact. A shovel and a basket are their primitive engineering tools. With these they dig out the intervening layer of gypsum till the sandy, water-bearing substratum is reached. There they plant their date-stones and soon have an orchard of thriving trees, whose tops, aspiring sunwards, presently rise above the ground-level, giving the distant effect of a mere clump of low bushes. But the enterprising cultivator cannot now rest. With basket, or pannier-donkey, he toils incessantly up and down a sloping path in the side of his excavation, carrying back the ever indrifting sand to its accustomed level—truly a labour of Sisyphus. The

date-palm is, however, most accommodating, it only requires to have its feet in water and its head in sunshine to speedily become a valuable asset, bearing fruit in abundance when from five to eight years old.

A series of artesian wells having been sunk in the part of the Sahara fallen under French influence, fruitful oases came into being, and were soon furnished with houses, gardens, surface-cisterns, and a very network of irrigation ditches. Round these flourish luxuriant vegetation, and fine groves of the invaluable date-palm, each numbering many thousand trees. Europeans migrate yearly to these charming retreats, and many of the Algerians settle there with their flocks and herds. But the nomadic tribes, contrary to expectation, do not seem to appreciate improved conditions. Instead of welcoming civilisation with open arms they ungratefully draw back further into the desert; the towns on the old caravan routes are being ruined and the oases abandoned. The Tuaregs of the central Sahara have grouped themselves in hilly districts, and defy interference. Even the Senoussi of the Niger basin make it a point of honour to remove from the contaminating presence of the "infidels," and are seeking new pastures.

The march of civilisation, however, acknowledges no boundaries. Stores of water and food being thus provided, the idea of a railway following the same course, to supersede the slow camel traffic of Arab caravans, naturally began to take shape. This, it was hoped, would enable the authorities to control the most turbulent tribes, and to open up a really profitable commerce with

the interior. Indeed, the complete project was the linking of the Algerian provinces with those of Senegambia and the Congo by way of Lake Tchad.

Four fairly marked zones of production lie beyond the Mediterranean littoral: (1) the oasis region, where camels and palm trees are plentiful; (2) the desert proper, where both water and trees are very scarce, and the roving pillager is to be dreaded; (3) the gum-tree belt, in which thriving herds of cattle and sheep are to be found, as well as horses; (4) the tropical vegetation zone or Sudan, where flowing streams ensure fertility all the year round. Caravan routes must all lead across the intermediate, waterless plain, be their starting-point Egypt, Tunis, or Tripoli; and in going south from Algiers it is necessary to actually *carry* water enough to last for six or eight days before a further supply can be reached.

To provide railway transport over this sterile tract was the first necessity. Three surveying expeditions were sent through Algeria to consider the best route. Those starting from the west and central provinces, conducted by civil engineers, were indeterminate; but the eastern party, traversing hitherto unexplored country, made some important discoveries. Colonel Flatters, its leader, a retired military officer of colonial experience, settled upon the Igharghar pass, through which flows a considerable river of the same name, as the easiest route for the projected line. He had, however, to turn back without reaching Rhat (as was intended), for food ran short, and the Hoggar-Tuaregs, who inhabit the healthy uplands of Ahaggar, where snow lies in winter, proved obstructive.

But the tribe professed themselves to be friendly disposed, and Flatters was encouraged to make a new attempt.

Permission being obtained, he set out in November, 1880, from Wargla, the most southerly French settlement, where a camel corps of Algerian sharpshooters is maintained for police duty under French military commanders. With him went two civil engineers, an artillery captain named Masson, and Dr. Guiard—all former companions; also two new-comers, Lieutenant de Dianous and M. Santin, C.E. The party further consisted of two French staff officers, forty-seven sharpshooters, and thirty-one Arab volunteers, ex-soldiers. They had also seven Chambia guides, and a Mohammedan priest to influence his co-religionists in their favour, as Moslems, like the Chinese and even more civilised peoples, are much addicted to secret societies permeating all classes and provinces.

For three months the expedition journeyed through the desert in fancied security, surveying leisurely as it went along; then the blow fell. On February 16th, 1881, Colonel Flatters was prospecting towards the Au Mountains, in company with Captain Masson, Dr. Guiard, and the two engineers. Suddenly the treacherous Tuaregs attacked him near the well of Bir-el-Gharama, and cut off his party to a man. At the same time the camels, which were being watered, were swooped upon, and their thirty drivers, along with a French commissary, were all murdered.

This paralysing catastrophe becoming known at night

in camp, a hasty council was held by the few remaining officers, and instant retreat decided upon. The cases were broken open, food, ammunition, and money divided, and, under cover of darkness, the little band of fifty persons began their desperate sixty days' march—perhaps the most tragic in the whole annals of exploration. Deprived of animals, short of food, and with the strongest men among them carrying water-skins, they struggled back across the terrible "Thirst Country," harassed day and night by the relentless enemy. At length the Tuaregs opened trading negotiations, and their offer to sell dates to the starving men was eagerly accepted, bringing, alas! additional disaster, for the apparently harmless fruit had been subtly inoculated with a vegetable poison, and a terrible scene of frenzy ensued. The sufferers, among whom were Lieutenant de Dianous and the commissary, rushed up and down screaming in agony, tearing off their clothes, and trying to strangle themselves, as every inhalation caused added torture. The lieutenant drew out his revolver to fire upon his own men, and had to be disarmed; others shot wildly in all directions, till hot water administered as an emetic presently relieved the worst symptoms. Many of the escort had luckily not touched the poisoned fruit, but the Arabs were seized with panic, and several deserted.

Resuming their painful march, the party next reached Amguid to find that the ubiquitous nomads already held the wells in force. These were finally dispersed after a sharp fight, which cost the lives of Lieutenant de Dianous, the two staff officers, and many rank and file. Only one

European, commissary Polguin, now survived, and he was reserved for a worse fate.

The shattered expedition's further retreat was virtually unmolested, as the Tuareg border was now passed; but the pangs of hunger became more and more intense. Men fell exhausted, and their maddened comrades actually destroyed them and held cannibal repasts. The unfortunate Frenchman met his end amid circumstances so ghastly that they cannot be reproduced. Four sharpshooters staggered half dead into Wargla on April 4th, and three others were picked up by relief parties, these being the sole survivors of eighty-eight persons who had set out, full of health and high hopes, barely five months previously.

The news of such an appalling tragedy might be expected to produce a profound impression in France, but it was received with what seems to us extraordinary indifference. No punitive expedition was sent, and no attempt made to bring the murderers to justice, nor to avenge subsequent victims. The railway scheme was simply pigeon-holed, and French prestige suffered eclipse among the border tribes, though some years afterwards, when the idea was revived, a strong French mission visited the scene of the massacre and induced the chiefs to acknowledge French supremacy. Various routes have since been suggested, but the favourite is perhaps this one, *viâ* Amguid to Timbuctu on the Niger.

Up to the present time, however, the trans-Saharan railway is still *en l'air*, undecided and unsurveyed. Romance and glory—or a desert grave—yet await the ambitious engineer.

CHAPTER XIII

SURVEYING IN AFRICAN SWAMPS AND DESERTS

ABOUT a year after the decisive battle of Omdurman Major H. H. Austin, R.E., was despatched by Lord Kitchener to make a survey in the reclaimed provinces of the Upper Nile.

The Sobat is an important river flowing from the Abyssinian highlands into the White Nile. Its tributaries drain a broad tract lying between the water-partings of the eastern branch—or Blue Nile—Lake Rudolf, and the upper reaches of the river, here called Bahr-el-Gebel, which flows out of Lake Albert Nyanza. Previous travellers had passed through portions of the country, but it had never been officially mapped out.

To this task, therefore, Major Austin applied himself as soon as the final defeat and death of the Khalifa cleared the way. In company with Lieutenant R. G. T. Bright he conducted a most successful expedition up to the head waters of the Sobat, and as far as Goré in Abyssinia. There the Englishmen were enthusiastically welcomed and most hospitably entertained. Seven months after leaving Omdurman they were back again,

their mission happily accomplished with the loss of but one human life—a transport driver, who fell a victim to some obscure ailment. The larger proportion of their pack-animals had, however, succumbed to exposure and toil.

We do not propose to give any detailed account of the expedition, as before the end of the year these indefatigable explorers were once more in Egypt, prepared to start upon a still more extensive survey covering part of the same route.

Major Austin had been attached, in 1897, to the Uganda railway staff, and afterwards assisted Major Macdonald to quell the mutiny in that Protectorate. He and Lieutenant Bright then took a party north to Lake Rudolf, but scarcity of food compelled them to turn back before reaching the Sobat. The gap between these two journeys from south and north they now proposed to fill in, and left Cairo on December 15th, 1900. A week later the Sudan military railway, constructed during the long and arduous campaign against the Mahdi, landed them in Khartoum.

The old mid-river city, whose name is consecrated to us for ever by Gordon's noble defence and tragic death, had risen again from its ruins. Lord Cromer was just paying a visit to this part of the Sudan, and for a few days brilliant festivities took place in what was, so short a time before, the very central stronghold of the Mohammedan impostor's crushing tyranny.

As soon as these functions were over the research expedition got to work. Sufficient transport of camels,

mules, and donkeys was already provided, with thirty ex-dervishes (called Jehadia) to look after them. A military escort of the 10th Sudanese battalion had been picked up at Assuan. Men, animals, and all paraphernalia, were stowed in double-decked barges and sailing-boats, attached to one of the river gunboats, the *Fateh*. Progress was slow, as the absence of coal compels every steamer to tie up at intervals while a wood-cutting gang lands and procures fuel.

When Sobat Fort was reached the flotilla left the Nile, and ascended the Sobat as far as Nasser, which is the most advanced post upon this river. Gordon founded it in 1874, and it is now held by a small force of Sudanese police. Disembarkation was completed on January 11th, 1901, and the gunboat returned to Omdurman, severing the last link with civilisation till August of the same year when Baringo Post was reached, after a series of terrible and heart-breaking experiences.

Tents were taken for the officers, and the men had blanket shelters. The askaris were further provided with *tarbooshes*, covered by khaki sunshades to protect their necks. Major Austin speedily organised his order of march. First, the Sudanese advance-guard; behind it, the camels in a string, with a small party to look after displaced loads. Then follow the mules and their drivers; the pack-donkeys in batches of a dozen or so, attended by Jehadia; and the spare animals, kept carefully apart ready for emergencies. Next, the commissariat sheep and goats, a most important item. And finally the rear-guard, to see that there is no straggling

from the unwieldy train. All this in single file makes an unwieldy procession. So hey, forward! Up the Sobat!

Now, let us take a glance at the country to be crossed. To travel along a river-bank is, in theory, easy enough; practically it here proves very much the reverse. At all kinds of angles to the main stream deep *khors*, or watercourses, are found, often with steep, rocky banks, and perfectly dry sandy or stony beds. In the wet season some of these may turn out to be affluents draining distant uplands, and must be crossed by swimming or bridging. But many are only overflow channels, into which the flooded river empties itself and then spills into marsh. The rivers, moreover, have a disconcerting habit of throwing off *loops*, which accompany the parent stream for many miles at a varying distance, and then reunite with it, each division bearing a separate name.

The banks are frequently edged with great expanses of bog, which—like the *khors*—necessitate long détours inland. In other places they are fringed by nearly impenetrable bush, among which wild animals have formed runs or tunnels down to the water. The rivers, again, may be invisible for miles at a time, owing to a dense jungle of tough, rank grass, ten to twelve feet high, most difficult to force a way through. Where there are no trees, this grass is burnt by the natives when dry, and a fresh growth springs up after rain. But the immediate result is very irritating to travellers. They are half blinded by black ashes disturbed during the march, or swept in clouds over their encampments—even invading

the privacy of the newly tubbed Briton who is prematurely rejoicing in his cleanliness!

The Sobat proper is formed by the junction of two large rivers, each three hundred feet wide, the Baro and the Pibor; the latter enters on the south side at nearly a right angle. In 1899 Major Austin followed up the Baro, by which route Captain Marchand's expedition had withdrawn through Abyssinia. On this occasion, therefore, when the confluence was reached, he turned southward along the Pibor.

With some of this country he was already familiar, having struck through it during the previous year's return journey, but under different climatic conditions. The swampy ground in drying had left wide cracks, which, concealed by matted grass, were pitfalls to the loaded donkeys. These unhappy little beasts kept getting their feet and legs wedged in, often above the knees, and had to be extricated at a great cost of time and energy, though some providence saved them from broken bones.

Where flooded rivers must be crossed, the loads were taken in a ten-foot James boat, half a ton at a time; then the animals were towed over in companies and reloaded. But sometimes the water was shallow, and, when the marshy banks had been prepared for their passage, the whole convoy could negotiate the ford on foot. There was much trouble with the donkeys the first time. What! *swim* with their loads on? Not they! And a bitter struggle ensued upon the bank in the raw cold of the morning. However, having been once forced over,

they seemed to grasp the situation, and made no such difficulties in future.

All along these swampy plains, sometimes wooded, at others covered only by the tall, stiff grass, food was abundant. By double journeys they had brought extra loads from the steamer, which lasted many days. Fish filled the rivers, but all was fish that came to the net of the Jehadia; hippopotami, if a skilful shot of one of the officers obtained them a feast, or, best of all, crocodiles, which they seemed to prefer even to waterbuck, though the flavour is generally too musky for the taste of Europeans. Geese, duck, and other waterfowl swarmed. While the grass, which took the very heart out of the driven goats, so that they lay down and died rather than plunge on in the transport track, was no obstacle to big game, the giraffes' heads towering five feet above it.

The Jehadia met with other dainties. One day they killed two huge lizards (specimens are found in Central Africa upwards of four feet long), one of which contained fifty-three eggs, as large as hens' eggs, in two strings like those of snakes, twenty-eight on one chain and twenty-five on the other.

But the insect pests, the plague of locusts, of moths, above all, of mosquitoes! Let Major Austin relate his own experiences. "At sundown they appeared in myriads, and drove not only us but our wretched transport animals nearly frantic. We had a grass fire built near us, as we made painful efforts to get through dinner, preferring a choking cloud of smoke to the tormenting insects; but it was of no use, and we were compelled to beat an

ignominious retreat to bed, and take shelter inside the curtains. . . . Just as a sense of oblivion is beginning to spread over one, a closer hum than usual is heard near the exposed ear. 'That beggar's inside the curtain!' You smack wildly at him—miss him, of course, but not your ear, which tingles smartly. Another hum—this time you feel a light touch on your forehead. . . . By this time you are wide awake, your ears keenly on the alert for every sound, and if twenty or a hundred mosquitoes do not discover the hole in the curtain by which the original explorer entered . . . you are more lucky than I was that night. At length I could stand it no longer, so jumped out of bed, lit my lantern, hunted for the hole in the curtain, a prey to hundreds all the time, tied it up in a bunch with a piece of string, gave a general swing all round with a towel to keep the torments at bay for three seconds whilst I darted again behind my curtain, and tucked it carefully in all round me. The few that still remained inside were systematically hunted down by the light of the lantern, and ruthlessly slaughtered in detail. . . . I secured a fitful snatch of sleep. . . . After such annoying experience, how one greets the first signs of early dawn!" *

Right glad were all to leave this marshy region behind, and to enter upon open, park-like country leading up to a mountain range, of whose peaks they had caught tantalising glimpses for some days past through the heat-haze. But a stiff climb was necessary, among glorious mountain scenery which the Europeans could not duly

* From *Among Swamps and Giants*, p. 86.

appreciate, owing to the ill effects of the keen air, slippery tracks, and almost incessant rainstorms upon their transport. Cold and rain at nights almost paralyses natives as well as animals, and to get them all on the march again was an arduous task.

The hilly zone passed, unclouded sunshine awaited them, and with it new and more severe trials. Within a couple of days the caravan came near perishing of drought. They had reached a grassy plain, pleasingly diversified with wooded knolls and groves of palms, where herds of gazelles, hartebeeste, and zebra were seen, and large game-birds abounded. The heat was intense, and travelling difficult through the dry swamp grass. After seventeen miles' march without finding water, the leader halted his exhausted followers, who had rashly emptied their bottles hours ago. A search party was sent westward with camels and donkeys, but did not return. When the moon rose, Major Austin despatched a corporal and six men on donkeys to fill a number of the men's bottles at the last watering-place. Not until seven o'clock next morning were figures seen in the far distance. Mabruk Effendi arrived, his animals heavily laden, and the expedition was saved.

That day's march was to the swampy lake, seven miles away, which the Sudanese officer had providentially discovered. Then a long tramp carried them clear of this strange desert, which, though bone-dry in summer, becomes an impassable marsh during the rains, so is to be avoided by travellers in any season.

Fresh anxieties, however, began to press upon them.

Their commissariat was almost exhausted, and nothing to replenish it could be obtained. The natives had evidently fled before recent incursions, and the country was almost derelict. But as stores of grain had been previously bespoken from Abyssinia for delivery at Merle on the Omo (Donaldson Smith's *Nianam*), by a certain date, the expedition pushed resolutely forward, though suffering severely from thirst and short rations. Presently they debouched upon the Sacchi, a big river once supposed to flow into Lake Rudolf, but which loses itself in marsh before the north-west arm, Saunderson Gulf, is reached. Great was the delight of the men, who saw their leader's promise of abundant water at last fulfilled. The Jehadia resolved, in the fulness of their hearts, to celebrate the occasion by supping off the remains of a long-dead elephant. Alas! European noses are delicate, and prompt orders to Mabruk Effendi led to a pitiless confiscation of the *bonne-bouche*, and the pouches which had contained it.

On April 8th the officers arrived at their old camping-ground of September 15th, 1898, the furthest point north reached from Mombasa. They were thus able to close the survey, which had proved remarkably correct, seeing that the two starting-points lay over 2,000 miles apart. Rivers, plains, and mountain ranges had been laid down on the map, and the altitude of the principal elevations within sight carefully calculated. The main object of the expedition was accomplished, and all they had to do was to press on with all possible speed to the coast.

Unfortunately, however, the Abyssinians had not kept

to their contract. Nor were any crops to be met with along the Omo and the shores of the lake, where thriving plantations were found two or three years before.

Travelling thus, weakened and dispirited, they needed no further trials. But fate had yet a cruel dart to hurl. Stragglers from the caravan were treacherously cut off by the Turkana, the bloodthirsty and powerful tribe who wander over the inhospitable steppes west of Lake Rudolf. These natives resemble the Masai in physical development, as well as in their nomadic habits; driving their flocks and herds about in search of the scanty pasturage of this miniature Sahara. One night a band of gigantic warriors charged with wild yells upon the camp. A smart rifle-fire beat them back, but they still dogged the caravan, which lost several of its members and many animals before it passed beyond their boundary.

Hunger and thirst, however, became more terrible foes than the Turkana, for game in these parts was scarce and shy. Lured on by reports of an advance-post established by white men, they travelled down the western side of the lake only to meet with fresh disappointments every day. At length it was necessary to follow their old route along the empty bed of the Turkwel *khor*, where water had to be dug for. Then they entered the hills peopled by the Suk tribe, from whom some food could occasionally be purchased. These natives have a quaint custom of weaving the hair of their ancestors with their own into a kind of loose bag drooping behind; so the head-dress of a man with a good pedigree will hang almost to his waist!

The unfortunate expedition struggled on, losing animals daily, and burning or abandoning stores. Tents, saddles, trophies were flung into the flames, and the dying animals—mere skin and bone—were killed for the cooking-pot. The Jehadia were unable to retain health without a good supply of cereals for daily rations, and by June tough, innutritious donkey-meat was the only food in camp. Officers and men sickened one by one, till the surviving transport donkeys—the camels were all dead—had to be chiefly used as ambulance carriers. The Jehadia became totally demoralised; few of them attempted to do their work, and some deliberately lay down to die, refusing to be carried on.

Picture the terrible, overwhelming anxiety of the officers, in whose hands lay the sole responsibility. Major Austin became dangerously ill with scurvy, suffering so excessively from loss of blood that he was forced to halt at intervals for two or three days and be nursed by the devoted doctor. Donkey-meat stewed, minced, and curried, eaten with a ration of two gingerbread biscuits, is but poor diet for an invalid!

We need not linger over the distressing details of the last part of the journey, for some supplies were presently obtained and a more hospitable region was reached. This brisked up the men, though many still fell victims to their long privations. And then one morning—ever-to-be-remembered day!—a messenger darted in with breathless tidings that a white man on a pony was approaching, and men with him carrying flour-bags upon their heads! It was true. The last rumour of a Euro-

A Turkana giant of the Lake Rudolf district of E. Africa. Standing 6 ft. 4 in., he dwarfs the Sudanese soldier on the right.

pean station had been fact, not fiction, and Mr. Hyde Baker, collector of the Baringo district, hurried forth to succour his compatriots. From this moment their troubles were over. But the leader, whose very dreams had run upon the discoveries of plentiful food for his starving men, had a saddening report to make. Forty-five out of his fifty-nine followers had succumbed to their disasters. What a contrast to his previous venture, when all but one returned safely!

Baringo post was reached on August 2nd, and after a fortnight's rest a fresh start was made to the Uganda railway, seventy-five miles away. And so to Mombasa, Egypt, and England.

CHAPTER XIV

SURPRISES OF THE GALLA COUNTRIES

THE "Unknown Horn of Africa" is still to a great extent *terra incognita*, though Burton and Speke's pioneer trip to Somaliland was made so long ago as 1854. Joseph Thomson, as we have seen, had to turn back in 1885 without reaching the great lake Samburu or Basso Narok, of which he learned many details from the natives. Three years later the Hungarian sportsman, Count Teleki, organising a powerful expedition for the purpose,* penetrated northward from Zanzibar and stood upon its shores, giving the lake the name now familiar to Europeans, that of Rudolf. But neither he nor later explorers succeeded in crossing the Galla country lying between the lake and the Somali littoral, until Dr. Donaldson Smith—an American who had seen sport and adventure in "the remotest corners of the earth"—carried through this enterprise in 1895, and in doing so made many interesting and unexpected discoveries.

The first of these was met with on reaching the Galla borderland, some weeks after the start from Berbera.

* This expedition cost £30,000.

Intelligent natives asserted that several marches to the north-west there lay a town called Sheikh Husein, whose inhabitants dressed in cloth and lived in stone-built houses. Almost incredible as this information was, it seemed worth while for Dr. Donaldson Smith to somewhat modify his route that he might investigate its accuracy. By this move he unwittingly subjected himself and his companions to three months of a sort of friendly captivity —another of the unforeseen incidents of this expedition; for the Abyssinians, who periodically raid Gallas and Somalis, had lately annexed these regions to Menelek's empire, and deeply resented the appearance of unauthorised Europeans, however innocent their avowed objects. All unconscious, however, of coming complications, the caravan tranquilly pursued its way through an attractive country of luxuriant vegetation and fine mountain scenery, which showed frequent signs of having been thickly populated before the invaders swept away crops and cattle alike. Cultivation became more flourishing as they advanced, the ground being tilled with rough wooden ploughs drawn by oxen, and the people living securely in spacious well-built huts. The governing race here only exact a modest tribute of little more than half the entire produce, which includes many cereals, beans, and pumpkins, besides animal-breeding.

And now, crowning the crest of a broad-topped hill, the local Mecca came into view, a cluster of thatched houses over which presided five white tombs and some stone mosques, the Sheikh's mausoleum being by far the most imposing erection. This great edifice—which is said to

have risen of its own accord in a single night—lies 40 feet square, with its corners projecting into parapets from which a handsome dome is carried up to the height of 30 feet. A lofty stone wall surrounds it, and two other buildings are also enclosed in a square (150 feet in measurement) by an outer wall 10 feet high, pierced by a fine gateway. The architecture shows some ingenuity of ornamentation, but is entirely covered with white plaster. The saint's body reposes in a crypt between four stone columns, and his ghost guards the sacred enclosure after nightfall.

As the picturesque procession approached, a band of three hundred natives gathered at the city gate to welcome these "heaven-sent" visitors. The chiefs or priests received them reverentially with a semi-religious ceremonial, a posture dance accompanied by much waving of wooden staves and clapping of hands; while the whole crowd sang and shouted, and drums beat incessantly. Feasts were prepared, a good camping-ground provided, and every facility given for examining the hallowed precincts—to which pious Mussulmans from far and near made pilgrimage.

This is the legend of the remote East African city. Sheikh Husein and his companion, Sheikh Mohammed, were two devout Moslems who left Bagdad two hundred years ago in order to convert the heathen. Arrived at Harrar they prostrated themselves on a praying-rug and besought Allah to convey them to their appointed place. Immediately they were borne through the air and dropped upon this mountain, being at the same time endowed with the

miraculous power of rearing up strongholds by a word.* Sheikh Mohammed settled upon a fertile plateau thirty miles away. The natives themselves claim descent from numerous Galla wives of the two saints, and are much more civilised than their neighbours; they have a fairish complexion, are all strict Mohammedans, and know Arabic. In character they are moral, honest, trustworthy, and obliging. There is an artificial pond in the centre of the town, from which a stone aqueduct irrigates the fields. During an outbreak of cholera some years ago the dead were buried round this reservoir, and in consequence four-fifths of the population were swept away by the epidemic.

No conclusion can be drawn at present concerning the actual date and the founders of these unfamiliar towns, native history being so obviously mythological. Perhaps future travellers may solve the mystery.

When the Abyssinian general, Wad-el-Gubra, heard of their arrival he was extremely angry, and summoned the intruders immediately to his presence for explanations. Though treating them personally with all due consideration and hospitality, he insisted upon the Emperor Menelek's permission being obtained before he would allow them to proceed. Meantime they employed themselves as best they could in short hunting trips, and in filling their collecting-cases with specimens for the home museums. The mounted escort, who kindly assisted at a

* A tradition much resembling this was detailed to Sir Richard Burton when he visited Harrar, which has also stone houses, tombs, and mosques. The period of this city's foundation was said to be about 1560.

butterfly chase by knocking the insects down with their whips, seemed surprised that the wingless results were received with so little gratitude—as it was firmly believed that the Europeans killed only for the sake of their commissariat! These Abyssinian soldiers are all accomplished horsemen, and belong to a conscript army which is kept regularly drilled, and forms an excellent fighting machine. But their rifles are often fired from a fixed rest, a forked stick, such as the old matchlock-men used, and which is still common among the Tibetans. Nor is this the only custom suggesting "immemorial usage." Meat is eaten raw directly the animal has been killed, though the Abyssinians do not follow the practice, so widespread among natives of East Africa, of drinking the blood as it flows fresh from the wound or severed vein. Each man carries off his share to devour privately, for it is indecorous in the extreme to be *seen* eating or drinking. Persons of higher ranks keep slaves in attendance to hold a cloak before their faces while they refresh themselves.

Ginea, the military headquarters, was a stockaded village containing thatched huts and a few tents, where a bi-weekly market for salt, vegetables, slaves, etc., was held.

Dr. Donaldson Smith could not get permission to go far afield, and had no chance of visiting some stone equestrian figures reported at the base of Mount Abougasin, twelve miles west of Sheikh Husein, round which the Webi Shebeli winds its early course. But the explorers made one expedition which went far to console

them for the tedious detention, with their Somali "boys" shivering in the bracing atmosphere of 7,000 feet above sea-level and whining to return to the coast. This was a thirty-mile ride to Loke on the River Web to see some wonderful caves. To reach these they had to pass through a deep cañon lined with palm trees, vines, and thick bushes. After a mile's tortuous descent the river was seen 200 feet below, and to its level they eagerly descended. "At the water's edge marvel after marvel presented itself. Balustrades and peristyles, huge columns and arches, looking as though they had been cut and carved by the Cyclops from mountains of pure white marble, broke the water's course and lined its shores.

"The manner in which the water had carved the rocks into such marvellous shapes was bewildering. There was a method about the whole scheme of columns, with their very ornate capitals, round symmetrical bodies, and splendid bases, that seemed to have emanated from the divine inspiration of some eminent sculptor. We . . . passed under an arch and through a natural temple composed of a little group of columns of white, translucent rock (coral limestone), supporting a roof of solid granite. When we emerged at the other side . . . the Somali boys . . . with one accord broke out into a prayer, so thoroughly were they convinced that what they beheld was the work of God, and was intended to impress men with the greatness of His power.

"The river broke around a little group of rocks, and joining again made a short dash, as it fell a couple of feet, and passed through the most superb archway it can be

possible to imagine. The whole mountain appeared to be resting on a series of columns thirty to forty feet high and twenty to eighty feet apart, between which were spacious vaulted chambers, with their domes rising many feet higher; and then again many columns uniting formed long arched tunnels. Along the edge of the river, as it passed through the mountain, the columns occurred in masses, or occasionally only a few yards apart, their great bases forming a series of steps down to the water's edge." *

The natives generally enter these caves through a hole in the mountain-side, and have for generations offered up sacrifices to Wak (the Great Spirit). There was a huge fireplace on one side, round about which hung wooden vessels, cowries, leather straps, and countless other offerings.

To the south of the mountain, where the stream has carved itself a long, straight road of exit, are a grand series of chambers and arches, but not so beautiful in effect as on the other side. The tunnels wound into the mountain in all directions through arches forty feet high.

Attempts to continue his journey direct being frustrated, Donaldson Smith was forced by the Emperor's orders to retrace his steps. Recrossing the Webi Shebeli into Somali territory, he sent a small party back to Berbera, under his most trustworthy headman, to replenish his failing stores of barter goods and European necessaries.

* Dr. Livingstone mentions some possibly similar caves in Manyuema. To these mountain fastnesses the natives fled with all their possessions when enemies approached, and dwelt safely in the caverns through which flowed their half-subterranean river.

When these were obtained, and the caravan made its new start into the unknown, only the ordinary obstacles of hostile tribes and occasional lack of water were met with. As a rule the natives were well-disposed, but some demonstrations occurred, and once an actual attack caused a little bloodshed. The train of baggage animals and cattle proved too great a temptation to resist. But as a rule they were able to obtain relays of camels, bullocks, and guides without much trouble, and made many interesting observations among these unvisited tribes. On one occasion they were permitted to attend a war-council, a chance so rare that it invites description. Guided by loud yelling to the river-bank they found the warriors of many villages—in full war-paint—squatting by serried ranks, a hundred yards at least square, upon the grass in the moonlight. The messenger marched round the centre with great deliberation, planted his spear and cried aloud three times—"Yaweromer!" (I have news). Then he related how a neighbouring tribe intended a raid upon them. Other orators followed. Then the warriors sprang up and shouted, "Prepare for war!" danced their war-dances, and dispersed till the morrow, when victory attended their spears.

The remnants of a decimated Galla tribe were found living on the top of a red sandstone mountain which sprang abruptly some 6,000 feet from the plain. There they grew crops and bred cattle, which were exchanged for other goods by a system of lowering and raising by ropes from their inaccessible fortress.

As the expedition marched volunteers joined it. The

Somalis callously turn out their old women to starve or fall prey to lions, and many of these poor creatures hung about offering to do the most menial labours in return for a pittance of food. Up country a tiny boy of three years old came boldly to ask for a piece of hide out of which to make himself new sandals. He fashioned them neatly with a knife, cutting straps to fasten over the instep, and then announced his intention of going with them to the next village to get a post as goat-herd. African children, says the writer, have no infancy. A young girl named Ola one day attached herself to the party; she would cook and do odd jobs, she promised, if they would let her travel with them, as she was sure to find a husband soon. A length of cotton cloth was presented to her to supersede her only garment—a very brief and scanty skirt. But she soon grew tired of so much clothing and dispensed with it altogether, till the jeers of the neatly clad Somalis induced her to wind the despised fabric round her waist, but over her shoulders again, never! Ola proved an intelligent and amusing little companion till the doctor one day saw her "flirting" with one of the native guides engaged *en route*. Their courtship was quite in the "east-end" style—a series of slaps and pinches and bursts of laughter. When the men returned to their village, Ola accompanied her admirer to become his willing bride. The simple marriage ceremony she anticipated consisted in fighting his two other wives!

Sport became very plentiful, and thrilling were the adventures of the hunters with rhinoceroses, elephants, and lions. The only previous traveller. Prince Ruspoli,

was killed by a wounded elephant, and natives graphically described the terrible scene. Donaldson Smith had a little zeriba built one evening, wherein he and his gun-bearer concealed themselves, with a donkey tied outside for bait. Three lions came sniffing round it, but were interrupted by the sudden appearance of a pack of hyænas, thirty or forty in number, who advanced to attack them, roaring almost as loudly as the lions themselves. They seemed to be getting the best of the fray, when the sportsman spied a lioness within range and shot her, dispersing all the other animals in affright.

Though many rivers were crossed, most of them flowing southward towards the Jub, stretches of waterless country intervened, where supplies could only be obtained by digging in dry river-beds or following the native paths to use their wells. This led to another strange discovery of bygone engineering enterprise. The wells of Le "lie in a broad meadow, being approached by a winding passage one hundred yards long, which descends gradually to the bottom of a large, round chamber, fifty feet deep, and opening straight to the top. The passage-way and the chamber itself have both been cut through solid rock. In the latter are a series of basins for receiving the water as it is drawn up from a narrow opening dug another forty feet below the bottom of the chamber. Rough ladders made of sticks and whipped together by leather thongs lead down to the water."

Similar wells were met with further on, those at Goff being even more extensive and sunk sixty feet below the surface. Their existence points to a previous occupation

of this region by some highly civilised race, possibly—thinks the author—the Egyptians.

Dr. Donaldson Smith visited a new lake in the long chain we already know of in the Great Rift Valley. This is Lake Abaya, to the north-east of Stephanie, a beautiful sheet of water some dozen or so miles across, edged with tall reeds and thronged by bird-life. He also discovered that part of the important Galana Amara rises in this lake and flows into Lake Stephanie (Basso Ebor or Boyi of the natives) instead of into Lake Rudolf as hitherto believed. To the north he again explored new country, following up the course of the river Nianam for a hundred miles towards the Abyssinian highlands, in which it takes its rise; while his comrade made an excursion round the north end of the lake in the Berthon boat, and ascertained that no other river enters there.

Incidentally, they came upon two tribes of dwarfs, rather taller than the forest pigmies, thus indicating intermarriage with a better developed race. These were the Dumes to the east of Lake Rudolf, and the Mela, living far up the Nianam, who averaged three or four inches more in height. They all resemble other pigmy tribes in their fashion of complete nudity and the use of poisoned arrows for the chase. Some of the Mela adorn their foreheads with the horns of goats, giving them a very demoniacal look. Both Livingstone on the east and Du Chaillu on the west coast heard from natives of an inland race who had "horns like animals." One feels curious to know whether the fable arose from some such tribal custom.

The great object of his long journey accomplished with such signal success—a large tract of new country with its rivers and mountains, its swamps and deserts carefully surveyed and mapped; Teleki's two great lakes revisited and their principal features noted—the explorer turned cheerfully homewards. Branching off at the south-east corner of Lake Rudolf from Count Teleki's original route, he broke new ground between that point and the river Tana, where he forgot the toils of eighteen months in a luxurious passage down stream to Witu, paddled by friendly Pokomos in their comfortable canoes.

It is noteworthy, in view of the progressive desiccation of Africa, that both the lakes—Stephanie and Rudolf—were now found to be many hundreds of feet *wider* than when Count Teleki visited them in 1888.

CHAPTER XV

AMONG THE BANDITS OF THE GREAT DESERT

AS the Zulu vocabulary contains no word for "mercy," so there is no word for "law" among the Tuaregs, that wild race whose home is in the trackless wastes of the Sahara. For centuries this Berber people have made for themselves a name of terror, even among the Arabs, who, as the professed descendants of Ishmael, keep their hands fairly well, or badly, employed against every man.

Though mention has already been made of the Tuaregs in preceding chapters, they are a sufficiently interesting tribe, by reason of the mystery that attends their origin, movements, and habits of life, to merit a few pages being devoted to them.

Like most wandering races, the Tuaregs and their Arab neighbours live largely by the chase, of which the chief quarry is the ostrich. This fleet-footed bird is pursued by relays of hunters, mounted on trotting camels, capable of moving at a swift pace for many hours together. The birds sighted, they are kept moving in a circle, on the circumference of which lurk the relays. As soon as

one party is exhausted the next takes its place; and so the hunt goes on, sometimes for days together, until the unfortunate ostriches are fairly run to a standstill. The skin of a well-grown cock fetches about £25 in open market, so that the hunters are richly rewarded for their trouble.

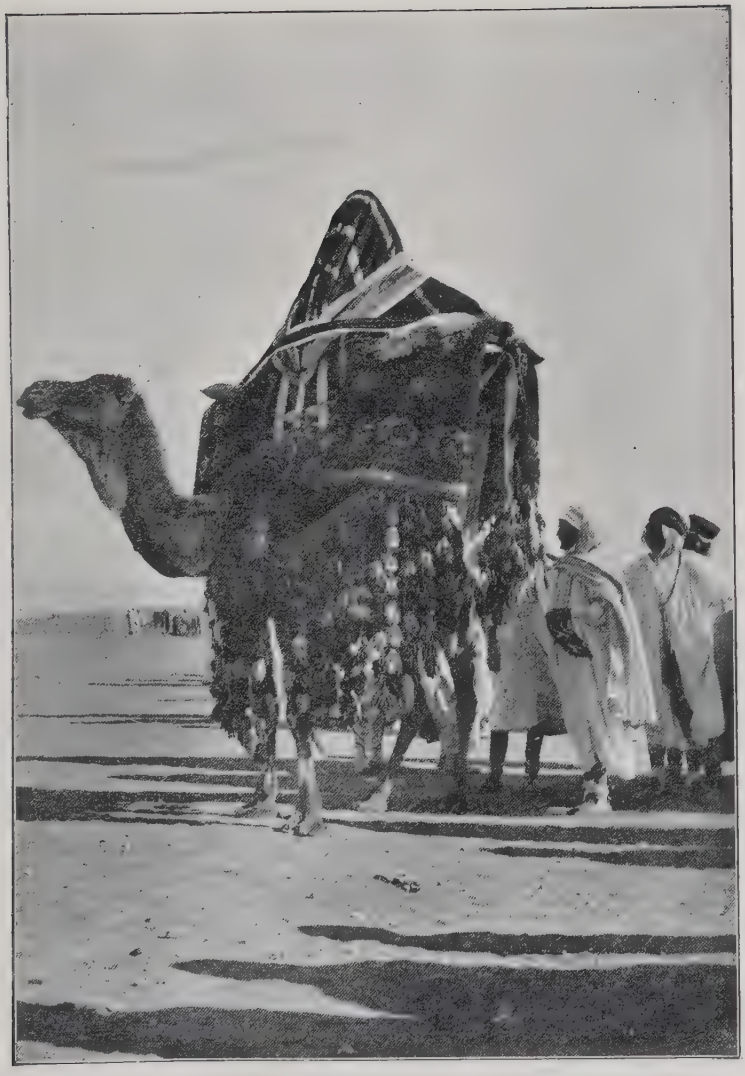
The camel is also employed as a stalking-horse in the pursuit of gazelle, which often feed in the districts where the Arabs turn out their animals to graze. As the gazelles soon become accustomed to the sight of camels feeding among them, they fall a comparatively easy prey to the marksman hidden behind his well-trained *mehari*. On sighting his quarry, the hunter slips to the ground, takes his camel by the tail, and drives him slowly towards the herd of gazelle, guiding his movements by sundry mysterious taps and whispered commands. The strong smell of the beast seems to completely annihilate even the perfume of an Arab body; so that after the first few moments of suspicious surprise, the gazelles, seeing nothing extraordinary about the camel that is circling round them, return to their grazing. The desert-man is thus enabled to pick out his victim at leisure and make certain of his shot.

Herds of camels, goats, and sheep, some oxen, asses, and horses, attend the Tuareg in his wanderings from place to place in search of pasture and water. A large camp generally contains five classes of inmates: the pure-bred noble, the *marabout* or priest, the half-breed, the serf, and the slave. Of these the third class are, in consideration of their half-noble origin, exempt from

menial duties, but debarred from many privileges of nobility. The serfs, the most numerous section of the community, cannot be bought and sold like slaves, but occupy a position very similar to the freedman of the Roman Empire. They are in many cases much richer than their masters, farming, trading and foraging on their own account. The slave class, mostly Sudanese, are treated without harshness, and frequently become deeply attached to their lords.

The Tuareg's noblest sport is undoubtedly man-hunting and caravan-raiding. Intertribal fights are conducted without firearms. But when the Shaambah or some other hostile race is to be attacked the Tuareg arms himself with his long-barrelled gun in addition to sword, dagger, javelin, and the stone ring which he wears on his right arm to crush in the temple of any adversary whom he may "get in Chancery" at close quarters. His greatest prize is the loaded caravan crossing the desert routes to Algeria. His fiercest joy is to come to blows with the French invaders of the Sahara. The attack delivered, the raiding party melts away into the desert, leaving behind the corpses of its victims, over which mounds are raised by kindly hands to mark the scene of the disaster. No wonder that the Tuaregs are dreaded by their neighbours, and rule a country covering a million and a half square miles. Their boldness and mobility make them the real lords of the Sahara; the French occupy it only in name.

A very curious social feature of Tuareg life is the high respect paid to women. Among the Arabs a girl is sold



An Arab ladies' tent on a camel, to screen its occupants from sun and dust. Inside is a kind of chair hung on each side of the camel, and on these the women sit. Over it richly coloured carpeting or silk stuffs are thrown. In the centre, over the hump, is a wooden grating that serves as a window.

to a husband, who makes her do all the hard drudgery, even to dragging the plough. With their Berber neighbours the position is reversed; woman holds a position which might raise the envy of her "new" white sister. She marries when and whom she chooses. After marriage she still holds all her property in her own right, and yet can call upon her husband to support her. As a result the distaff side of a family is often the richer.

The girls enjoy a freedom quite extraordinary among a Semitic people. They are called "little queens," and exercise their royal privileges to the full. They come and go as they like, and ride unaccompanied far into the desert, or on long journeys.

In love matters they emulate the "fair ladyes" of the Middle Ages. Under their eyes the gallants of the tribe engage in tournaments and trials of skill; and well must a man bear himself to obtain a token from his lady-love. When he starts on an expedition he asks some souvenir to carry, not in his helmet, but on his finger or arm. But should he return empty-handed from a raid, he is an object of aversion to her, and of derision to her companions. In short, the Tuareg woman proves herself decidedly the "better half" of anyone she deigns to marry.*

The Tuareg noble is an educated man, as learning goes in North Africa. He can read and write, and compose

* *Cf.* Dr. Wm. Junker's *Travels in Africa*, p. 132, where it is stated that among certain Bedouin tribes the wife "rules the roost in a way which it seems difficult to reconcile with the defiant and haughty nature of those untamed nomads"; and also the hen-pecked condition of the males in certain tribes of Eastern Tibet.

poetry by no means despicable. A noble was once induced to stay at Algiers, where he became quite the "lion" of the French community. One day a lady asked him to contribute something to her album. He took his pen and wrote:—

"Thy name, Angelina, has inspired my soul with a love that will never be extinguished. For love of thee I would go even as far as France.

"Thine eye kills by its brilliance and deprives the heart of man of wisdom. If it were possible to assess thy value, I would give for thee six thousand pieces of gold. For thee I would give my best camel.

"Before this damsel attained to womanhood we thought that the gazelle never took the human form, but now we have seen this prodigy. If this young girl were to come to our country of the plain, there is not a single man who would not come from far and near to see her." What lady could have wished for prettier compliments?

For some reason or other the Tuareg is very loth to show his face, even to his own family. To unveil would be grossly immodest. His mask is his continual companion. "He lives in it, sleeps in it, and never removes it while eating or drinking, he merely pulls it away from the lower part of his face and passes the food or cup up to his mouth from beneath it."

It was this peculiar habit that induced Mr. W. G. Harding King, from whose interesting book about these people quotations are here made, to travel far into the Sahara with the set purpose of finding a band of Tuaregs, and persuading them to show their faces to the camera.

Sometimes want of forage or water drives such bands northwards, and they encamp comparatively near the Algerian edge of the desert. But so vast is the area of the Sahara in proportion to their numbers that it was a hard task even to find a Tuareg camp.

Leaving Biskra with a guide, a servant, and a camel-load of necessaries for a journey, Mr. Harding King pushed southward through the fringe of the Sahara, which on the Algerian side is much more picturesque than is usually imagined. "The scenery," we read, "was never without a charm. There was always the same wide level expanse of brownish soil, covered more or less sparsely with tufts of rank yellow grass and little silver-grey and olive-green bushes. There was nearly always the same clear blue sky overhead and the same brilliant sunshine, but though the scenery was somewhat monotonous the colouring was so soft that it was always most wonderfully pretty."*

The desert men, from the nature of their lives, are very keen-sighted: Aïssa, the guide, could determine, half a mile away, the destination of a caravan, its starting-point, and the nature of its loads, by noticing small details which would escape the eye of a European. They are also wonderful pedestrians, being able to maintain a jog-trot for many hours on end.

During the march Mr. Harding King saw many interesting sights;—a falconer hunting hares and bustards; a snake-catcher collecting snakes; cemeteries in mid-desert; pillars of sand whirled up by the wind; wells

* *A Search for the Masked Tuwareks*, p. 30.

sunk by hand to a depth of some hundreds of feet: water gushing from French artesian bores to irrigate palm plantations; curious water-clocks used by the palm owners to regulate the use of the water; a marriage dance and ceremonies. He heard, too, legends of the Sahara which recall the adventures of Ulysses, and the mysterious cities of the Takla-Makan. One of these legends is worth noticing.

Somewhere in the Sahara stands an enchanted oasis, planted with trees bearing all manner of luscious fruits, and melodious with the songs of gorgeous birds. In its midst stands a palace, built of precious stones, an object glorious to behold. From the palace roof fair damsels are seen to beckon any men who pass that way. But vain is any attempt to enter, for the palace recedes like the foot of a rainbow, and the charmed wanderer pursues the retreating phantom till he falls, dying with fatigue, beneath its very walls. It is said that one man, and one only, escaped from this oasis of the Sirens. Turning his back on their blandishments, he loaded his camels with the garden fruits, hoping to sell them at a good profit. But alas! drive his camels as he might during the day, every evening he found himself back in the oasis. Then he realised that the genii of the place were preventing his escape with any of the spoil, which he accordingly relinquished. Another attempt to return home being frustrated in the usual way, he examined his baggage thoroughly and discovered a single date stone in the bottom of a sack. Not till this had been restored was the spell broken.

The Arab is a thorough-going believer in ghosts, and in monstrous creatures of the desert. In one place is to be found a horrible reptile, eighty feet long, with a woman's hair; in another a huge black animal that inhabits mountain caves, and feasts upon intruding men, after squirting them to death with boiling water.

Sometimes dust storms filled the air with gritty particles; at others rain converted the surface of the desert into a slippery film, on which men and camel had hard work to stand. In the night the wind blew bitterly cold: by day the sun was scorching hot. Through changes such as these the little party passed from oasis to oasis in search of the Tuaregs, who, like the enchanted palace, seemed to be ever near, but never to be reached. Mr. King was beginning to despair of accomplishing his purpose, when, at Gomar, Aïssa managed to get hold of a Tuareg noble, one of a small band encamped in the neighbourhood.

"A huge black-masked figure, stooping his head to avoid the lintel, stepped over the threshold and stood for a moment grim and forbidding by the entrance. He was enormously tall. He towered literally head and shoulders over my little guide. . . . His face was entirely concealed by a black mask consisting of a strip of black cotton wrapped twice round his head in such a manner that the edges of the two folds met over the bridge of his nose. A pair of loose black trousers concealed his legs, and a long black robe, worked over his chest in a sort of smocking, which reached down to below his

knees and covered a body as supple and sinewy as a ferret's, completed his attire."

The following day a visit was made to the camp. The women at once retired out of sight, while the men sat round taking a very peppery sort of snuff. Their visitor was not prepossessed in their favour by their manners or appearance—since washing is a thing unknown among the Tuaregs.

Now at last came the camera's turn. During a tour of inspection Mr. Harding King managed to make some snapshots of the tents, though not without attracting the attention of his hosts. The latter, becoming suspicious, demanded the purpose of a camera, and were gravely informed by the guide that it was a peculiar kind of clock which required constant winding, hence the clicking noise heard from time to time. This statement put the photographer in an awkward position, from which he escaped by confessing the camera's true functions, and by explaining them to the best of his ability. Two days later, during the absence of all the men but two from the camp, photographs were secured, amid much joking and giggling, of some Tuareg women, who were as tiresome a subject to pose as a pack of hounds. Then the gentlemen were asked to "sit." It is interesting to read what happened in the case of the young noble.

"He was extremely unwilling to remove his mask. I had, in fact, far greater difficulty in making him expose his face than I had in getting the women to unveil. No sooner was it off than his demeanour entirely changed. All his dignity and haughtiness were gone. He kept, in

A masked Tawarek eating. So averse are the Tawareks to showing their faces that not even at mealtimes will they remove the black mask that hides their features.

spite of his obvious efforts to repress them, breaking into little nervous sniggers. He looked as shamefaced and confused as an ordinary Englishman would if he were compelled to appear in public in the airy costume of his morning bath. That 'brigand of the Sahara,' great strapping fellow as he was, positively blushed a deep ruddy brown at the indignity which he was made to undergo in exposing his face to a stranger. He hung his head and turned his face aside in a torment of outraged modesty and bashfulness, which, though extremely ludicrous, was almost pitiful to see."

To us it is curious that a man should experience this bashfulness, and indeed amusing. At the same time this reluctance shows the strength of habit, arising from some custom, the origin of which is lost in obscurity. Though their women veil in the presence of strangers, they do not cling to the *litham*, or mask, with the pertinacity of the men. Among the Arabs and Bedouins also they are not averse to show their charms. "The feint which they made of concealing their faces from me was always slight; when they first saw me they used to hold up a part of their drapery with one hand across their faces, but they seldom persevered very steadily in subjecting me to this privation." *

The young Tuareg noble when exposing his face, persisted in keeping his eyes shut, perhaps in the hope that thereby the indignity might somehow be lessened. At the end of the sitting he lost no time in resuming his mask. We may wonder whether his companions ever

* *Eothen*, by A. W. Kinglake.

learnt of his falling away from custom; and if they did, what their judgment was. It would, at any rate, have been hard luck for the persevering traveller if, after so great an expenditure of time and trouble, prejudice had been too strong to permit the withdrawal of a mask from one of those dusky faces.

Note.—The author is much indebted to Mr. W. J. Harding King and Messrs. Smith, Elder, and Co. for permission to quote from *A Search for the Masked Tawareks.*

CHAPTER XVI

KING SOLOMON'S MINES

THE whereabouts of that gold-producing country whence the navies of Israel and Tyre brought wealth unparalleled at any other period of history, has always been a favourite subject of speculation. Arabia and Hindostan, the Malay Archipelago and Spain, in turn provided a theoretical site for the "Land of Ophir." Nor were scholars lacking who suggested different parts of the African continent. But the true locality remained unknown. The very names of Tarshish and Ophir have been blotted out save from the pages of Holy Writ.

During the closing decades of last century this academic question unexpectedly assumed a practical form. Europeans were slowly awakening to the value of Africa as a field for exploitation, when settlers in the southern colonies had their appetites whetted for adventure. Somewhere in the unoccupied interior, it was whispered, lay those famous goldfields from which King Solomon and the Queen of Sheba drew their treasures—probably still unexhausted.

A hill on the borders of Zululand has always been known to the natives as Thaba l'Suliman. Rumour tells of a broad track leading south from the Matoppo Hills on

which—overgrown as it is—may be seen the ruts of former heavy traffic. Naturally this decaying highway bears the local designation of "King Solomon's Road." Old Portuguese settlers on the Sofala coast found the name of the Queen of Sheba connected with certain up-country diggings, and their Moorish forerunners exporting gold; so they promptly called their new possession "Ophir." Then followed hints of rediscovered mines, and relics of a long-forgotten past;—vague, elusive stories, but fascinating as vague. Even the phlegmatic Boers listened, and were roused into action. They inspanned their oxen and trekked northward, negligent of those ancient workings near the Limpopo which might have furnished a clue to the vast riches lying beneath their very feet.

Boers and Britons, however, returned unsuccessful from the quest. Then the brilliant novelist arose, who wove these legends round the figures of his fictitious heroes, and *King Solomon's Mines* thrilled the imagination of all English-speaking people.

But there was a foundation of solid fact underlying these airy fancies. Years ago, while on missionary tours among the Bechuana, Moffat and Livingstone told of mysterious ruins in those parts. Hunters and explorers stumbled upon massive fragments of walls and towers, and marvelled over them. Prospectors found deserted shafts among auriferous strata bearing traces of a teeming industry. Finally, in 1868, Renders drew public attention to certain huge enclosures with gateways, towers, and temples in good preservation. Three years later Dr. Karl Mauch, and the English artist Thomas Baines,

separately visited these ruins and published their observations. Mauch, a scientific enthusiast, identified them positively. Upon the mount stood the facsimile of Solomon's glorious palace. Amid the crumbling walls upon the slope below the Ethiopian queen had held her court. Even the precious *almug* trees still flourished (to his eye) among encroaching bushes! Some readers scoffed; others consulted the biblical records; but thoughtful students went to the Portuguese historians.

When Vasco da Gama rounded the Cape of Good Hope four hundred years ago, and found thriving Arab settlements upon the south-east coast of Africa, like a dutiful citizen he took possession of them in the name of his king. Zanzibar, Sofala, and many other places thus fell into Portuguese hands. Merchants and Dominican fathers, eager for converts, soon hastened thither. Some of these left us chronicles of their experience, and much fairly accurate information about the new territories. De Barros describes, in some detail, the gold-bearing plateau of Manica, and a mining region further inland which had supplied old nations with boundless wealth. Its alluvial deposits were still worked by natives for the Arab traders, but deep mining was no longer practised. Upon these plains stood a remarkable "fortress of dressed stones," put together without mortar, and far superior to Portuguese workmanship. This was only the most noteworthy of many similar relics, which the Arabs referred to a remote antiquity, since—learned as they are in scripts older than that of the Koran—they were unable to decipher the hieroglyphics carved over the principal

gateway. These forts were probably built for the defence of the neighbouring gold mines, and the writer compared them with structures, presumably of the same date, in Abyssinia. The native inhabitants, whose "emperor" assumed the title of "Lord of the Mines," simply called the ruins Zimbabwe, or royal residence. No legend of their origin existed, but they were considered supernatural ("works of the devil").

Interest in these ancient ruins of Mashonaland having been rekindled by the recent British occupation of the country, Theodore Bent, a celebrated archæologist and Oriental scholar, visited them in 1891, hoping to penetrate the mystery of their erection.

Mr. Bent was a great authority upon Phœnician and Early Arabian archæology. He unhesitatingly pronounced the ruins which he examined to be the work of these peoples, at a period greatly antecedent to the rise of Mohammedanism. Nor have further researches done anything to shake his theory. On the contrary, hundreds more ruins have since then been found and described, all tending to establish the same conclusion. One point he brought out definitely,—these remains are not all of the same period. They fall into four different classes, which show successive occupations of the original buildings.

(*a*) First and best Zimbabwe period.

(*b*) Second and somewhat inferior Zimbabwe type.

(*c*) A later, decadent form.

(*d*) The period when local races tried unsuccessfully to imitate their predecessors.

Excavations at Great Zimbabwe threw much light upon the whole subject. The citadel itself, apparently the former capital of the foreign race which "farmed" the wide extent of our modern Rhodesia, crowns a rocky eminence. Round it are scattered small foundations, chiefly circular in form; while at the foot of the hill is a great ruin (Mauch's "Queen of Sheba's palace") which seems to have been intended for religious worship rather than for protection. It is built in the form of an ellipse, and the temple contains two towers or cones, one much larger than the other. The broad enclosing walls, finished with a platform of granite slabs, have a parapet decorated with small cones and monoliths, many of which are still *in situ*. All the curves and measurements are calculated upon an exact geometric system, and show great astronomical knowledge. This is further proved by the "orientation" of all these mighty structures. They are pierced with openings evidently so placed as to allow the solstices and other important positions of the sun to be correctly observed. It is specially noticeable that only the constellations of the northern heavens were taken into account. Certain portions of the outside walls have two or three courses of stones arranged in a fancy pattern, generally the *herring-bone* form, not merely for ornament, but to serve as a dial of the seasons.

Among the débris numbers of important finds were made, all of which—added to the previous observations—indicated that these structures had been raised by followers of the Phœnician nature-worship. More emphatic testimony still was obtained by exploration

of the citadel, a vast pile whose external walls, thirty feet high, spring from a foundation at least half as wide. Every precaution has here been taken to preserve the inmates from attack, the only unprotected part being a natural plateau bordered by the perpendicular cliff. Here was evidently the garrison "chapel," where large congregations collected to join in the mysteries of Baal and Astarte. A broad altar is still to be traced, and many symbols of the prevailing cult. One huge, unhewn menhir, now prone on the earth, was probably used as a gnomon. Roofed passages and a winding staircase alone communicate with the interior, showing how jealously the sacred enclosure was guarded against intrusion. Mauch reports that in his time the natives used annually to sacrifice a black bull in one of the old temples, but this custom (a possible survival of ancient rites) has now lapsed.

The first period of architecture has Great Zimbabwe as its best example. These early structures were generally built upon low knolls, with foundations cut down to the rock itself, and some are drained. They are extraordinarily massive, plain, and symmetrical, and always in an elliptical form, fashioned with small blocks of carefully hewn stone, so arranged as to bond the courses firmly together without the help of mortar. The exterior walls —in spite of a considerable "batter-back" on each side— are almost wide enough at the top for a waggon to pass, and are evenly paved. Very narrow openings, rounded off and buttressed, give access to a perfect labyrinth of passages which zigzag in the most bewildering way about the great enclosure. They are guarded by buttresses and

traverses throughout their length, the architectural lines being everywhere curved. Walls of huge size shut off the separate chambers; and in some cases the outside walls are double, separated by a very narrow passage. The floors are made of the finest granite-powder concrete, worked very smooth and glazed by heat. Walls, towers, and conical buttresses are all built solid, and there are few steps.

Buildings of the second class are decidedly inferior. The walls are a few feet thick, and sloped only on the outside, the courses frequently uneven. Sometimes they consist of two shells filled up inside with rubbish, in the fashion of nineteenth-century jerry-built villas! Doorways are square instead of rounded, and there are few preparations for defence. They are often constructed terrace-wise up a hill, with quite low walls, and no dug foundations; the floors are made of very poor cement, and connected by many flights of steps. Most of the religious emblems are also lacking, though the walls may be profusely decorated with tiles in patterns.

Altogether the builders would seem less skilful, and the fear of attack less pressing, which suggests a considerable lapse of time.

Bent refers the first period to the Himyarites of Southern Arabia, 1100 B.C. or even earlier; and the second to their Phœnician successors. After this there was a long interval before the Moslem Arabs arrived. Finally the Portuguese took the land by conquest in 1505, built their stronghold, "Fort Ophir," at Sofala, and presently exploited these ancient dwellings to a small

extent—as proved by the discovery of some cannon and other European articles among the ruins.

Many Himyarite remains have lately been disinterred in Arabia, which present the same features as those of Mashonaland. They are also closely resembled by the Abyssinian ruins, and the Sardinian *Nuraghes*, all no doubt the work of the same skilful and enterprising people. Some fragments of a bowl found by Bent at Zimbabwe has an inscription round the lip which answers to the "earlier Sabæan" or Minæan carvings (Himyaritic). Dr. Schlichter, in 1899, discovered a soapstone slab, with remnants of an inscription undoubtedly of "ancient Semitic origin," like those in South Arabia, but of the oldest Phœnician type. Rock-carvings, hitherto undeciphered, have also been found in Bechuanaland.

It is interesting to notice that a large "offering-dish" of very hard wood, picked up near Zimbabwe, has the signs of the zodiac carved round its rim (like other zodiacs seen in the ruins), with the sun entering Taurus instead of Aries for the vernal equinox. This fixes the ancient date long before David and Solomon gathered such vast stores of gold and silver for the temple and the king's palace.

All the religious symbols found were of the stone-worshipping period of the "cult of nature," the age of gigantic monoliths and altar slabs, of stone carvings and piled-up towers—the "high places" accursed in the Scriptures. There are portions of soapstone beams ornately decorated; many soapstone birds on pedestals, the vulture, sacred to Astarte, and known as the *totem*

of an old South Arabian tribe. Other articles are ornamented with rosettes representing the sun (Baal). The Cape museums are full of these relics.

The daily life and occupations of the inhabitants, however, can be traced just as well as their form of idolatry. Zimbabwe was evidently the great centre of gold-smelting and working. There are furnaces sunk level with the cemented floors, while those of later date are not excavated, but built up. We find blowpipes with fragments of gold still adhering to them; pincers which have been used to draw out fine gold wire; crucibles which were never emptied when the last workers dropped their task.

Deep beneath the old concrete floors — themselves covered a dozen feet or more with the silt of ages—lie graves evidently of high officials and their families. One skeleton measured seven feet in length; "there were giants in those days." All the occupants of the graves had golden ornaments interred with them, sometimes of great value. Two tiny baby's bangles were found near the bones of a woman and child. There are double bells, golden rosettes, plates of beaten gold, nails and tacks, showing with what extravagance it was used for furniture, as well as for personal adornment. Truly, "this was nothing accounted of in the days of Solomon."

But how did this powerful, alien race dwell in the heart of savage Africa? And what are the proofs that the Wise King sent his navies *here* for gold and silver, ivory and apes and peacocks, precious stones, and scarcely less precious timbers?

Nowhere else in the world can signs be now found of

such extensive workings and enormous output. The archæological researches already described have shown the derivation and approximate date of the builders who reared these massive shelters that they might dwell safely in a hostile country. Solomon flourished B.C. 1000, and we know that David had already gathered great store of precious gear for the house of the Lord. It was no new enterprise upon which the kings of Israel embarked, when they had conquered a road to the Red Sea,* and could send their ships to the eastern ocean. Evidently they took part in an industry already established. And what had Israel, a small and poor kingdom, to offer in exchange for imports of such value? Practically nothing, except to join a confraternity of labour, and reap some of the profits.

In those distant ages Africa was peopled by a primitive race, the Bushmen-Hottentots, low in the ethnological scale, but numerous and warlike. These, once subdued by invaders, could be utilised as slaves to extract the wealth their masters coveted. But the masters were few at first, and the workers formidable from their multitude. So these marvellous fortressess were reared by forced labour under the superintendence of Asiatic engineers and priests skilled in astronomical lore. They were built of granite upon granite hills, close to the quartz layers which contained the gold; and round them sprung up towns, some of whose ruins even now cover a mile or two in extent. On isolated peaks away from the reefs strong "rest-houses" were erected, and chains of smaller forts

* The dockyard of Ezion-gebir.

guarded the roads down to the coast. Meanwhile the natives toiled in gangs beneath the lash of their task-masters. They dug out the quartz, burnt and broke it, ground it fine, and washed the golden particles free in hollows still visible down the beds of streams long dried. Bent found rows of crushing-stones near Zimbabwe, sadly eloquent of slave labour, sixty or seventy in one line, and elsewhere groups of 600 mortar-holes have been seen, deep or shallow, from six to eight inches in diameter. But the gold was then carried to the citadels for smelting and working by foreign artificers, and we have noted the infinite precautions taken to guard these strongholds from possibility of attack. Step by step the Arabians advanced till their settlements are found spread over 115,000 square miles of country! More than 500 sets of ruins are already known, and the mines—thirty, fifty, seventy, and even one hundred and fifty feet deep — may be counted by scores at a time, apart from the surface crushing and the alluvial workings.

At night-time the unhappy slaves appear to have been herded in circular pits, sunk twenty feet in the earth, faced with roughly dressed granite blocks, and entered only by a sloping gangway from a distance, forming a tunnel where it pierced the wall. These "slave-pits," twelve to fifteen feet across, at intervals of 200 to 300 yards, were first noticed by the explorers, Messrs. Hall and Neal. They are partly filled up by soil and large trees which have taken root in them.

The constructive ingenuity of this powerful, ancient race is equalled by the strategic skill with which they

defended their El Dorado. In their day, at least, no native uprising could have occurred. Phœnician nations were always very secretive concerning their resources, and modern Arabs follow the same example. They owned to finding tin in the islands of the northern sea; we know that they obtained it from Britain and possibly Ireland. The famous Irish "round towers" have duplicates in Sardinia and probably in Zambesia. Not long ago a tin ingot mould was dredged up in Falmouth Harbour. The soapstone mould of the Zimbabwe gold-smelters—2,000 years ago—is of the same shape, that of the familiar "devil's-purse" on the seashore, but with greatly broadened horns. African natives collect gold dust in quills; so do Cornish miners from the tin mines. Have these Phœnician traders left us another momento in those seemingly purposeless strips of "herring-bone" tiling which the tourist notices in old Cornish walls—built, as those of Zimbabwe, of small blocks of undressed stone laid without mortar?

Cornwall and Mashonaland are far apart, and it is strange to reflect that Britons are the heirs of those old-world adventurers. Our prospectors are opening up the deserted mines, exploring quarries and tunnels, shafts and adits which they can hardly improve upon. Our pioneer farmers are trenching deep the soil exhausted so many generations ago by the supplies needed for conquerors and conquered. The treasure-seekers planted great agricultural settlements in the most fertile tracts. They turned the valleys into tiers of narrow "terraces of cultivation"—two hundred, perhaps, between the

bottom and top of the slope—irrigated by watercourses, and each edged by a stone wall. One can ride for fifty miles with these tokens of a vanished civilisation on either hand, and crumbling villages in the valleys between. By such methodical provision was the growing colony fed.

Enough gold being collected in the principal fortress of each district, caravans were organised to carry it to the coast. Bullock transport may have existed—witness the wheel-tracks—but the backs of slaves were always available. Safeguarded by the watch-towers, they marched all day, and at sundown took shelter in one of the larger forts, where gold dust is found sprinkled about the floors. So they journeyed down to the harbour, where the navies came every three years to load this valuable cargo—gold and silver, glittering stones, tusks of ivory, monkeys from the forests, and bright-plumaged birds, as well as the choicest of the slaves.

Touching here and there on the way, picking up additions at each stopping-place, these "ships of Tarshish" returned to their Red Sea port, whence an overland caravan completed the journey. Professor Keane believes that Rhodesia may be identified with that land of Havilah which contained "much gold," and that Ophir meant simply one of the great trading depôts where goods were collected for distribution, probably upon the south coast of Arabia, therefore within the sphere of Solomon's navy. Thus we can picture the precious freights borne to Jerusalem, though Christian humanity now shrinks from the idea of offering gold won by the sweat and blood of slavery for the service of the Almighty.

Nations rise and fall. In course of time later Phœnicians succeeded the ancient Himyarites, and added to or superseded their memorial walls. Zimbabwe contains both styles of architecture, as if part of the original had fallen or been destroyed and was then rebuilt. Either the natives were less threatening, or their masters were less cautious, for the days of impregnable strongholds were over. But some great catastrophe at length cleared the country of its incubus—the gold-seekers. They did not go because the mines were played out; to-day a rich harvest is being yielded by hundreds of newly entered claims. Were they recalled by edict like the Romans who colonised Britain? No one can say. But neatly blocked-up doorways are seen. The entrance to a mine is walled across, while heaps of quartz stand by its mouth stacked ready for removal. Tools are found at the bottom of shafts, as if abandoned by the workers in a panic, curious flint tools, stone axes and wedges, as well as very ancient iron chisels, hammers, wedges, and trowels. The quartz-crushers are thrown down near their basins. A pile of skeletons at the Mundie ruins give evidence of a fight or massacre; cakes of gold lying by their waists may once have been held in a belt.

The Hottentot inhabitants were swept southward by the irruption of stronger tribes, who in their turn were nearly wiped out by others, and the very memory of the Zimbabwe dwellers has died away. These fantastic legends of Solomon and his contemporary queen alone survive.

CHAPTER XVII

A BRAVE DASH FOR THE NORTH POLE

FARTHEST NORTH

THE *Jeanette*, the vessel in which the American expedition, under De Long, made its attempt on the North Pole through Behring's Straits, stuck fast in the ice south-east of Wrangel's Land in September, 1879, in latitude 71° 35′ N., and foundered two years later north of the New Siberian Islands, having drifted north-westward into latitude 77° 15′. By reference to the map it will be seen that if the general line of this drift be produced northwards it will pass, not actually through the Pole, but nearer to it by several degrees than any point at that time attained by explorers.

The northward drift was a valuable discovery; but more important results were to follow. Three years after her foundering, relics of the *Jeanette* were found frozen into an ice-floe on the south-east coast of Greenland. This occurrence gave a start to the obvious theory that the floe, with its freight, must have floated right across the Polar Sea, in continuation of the *Jeanette's* line of drift, borne by a constant current setting that way.

There was other evidence in support; for instance, the constant arrival on the coasts of Greenland of Siberian drift-wood; the presence of many Siberian forms among the Greenland flora; and, more important still, the known currents flowing into the Polar Sea through Behring's Straits and out of it by the deep channel between Greenland and Spitzbergen.

Dr. Nansen took up the idea, and in February, 1890, after his return from the Greenland expedition, delivered a lecture before the Christiania Geographical Society, in which he formulated a daring plan of making use of these suspected forces of Nature for purposes of exploration and scientific research.

His proposal, briefly, was as follows: To have a ship built just large enough to accommodate a crew of twelve men and their supplies for five years, propelled by steam and sail, very strongly constructed to defy ice-pressure, and of such a shape as to be squeezed up above the ice instead of being crushed among it. To navigate this ship by summer as far as the north of the New Siberian Islands, and there, on the approach of winter, to thrust her into the ice, and let the drift do the rest. He was not sanguine of being taken to the actual Pole, but was confident of passing comparatively close to it and accomplishing a record of "Farthest North."

The plan met with immediate support from many quarters, and preparations for carrying it out were promptly taken in hand, in spite of volumes of adverse criticism, especially from those explorers who believed in the existence of a circumpolar land; a grant of £11,250,

two-thirds of the cost of the expedition as at first estimated, was made by the Norwegian Government. King Oscar subscribed £1,125, and other public and private contributions swelled the sum to nearly £25,000, which after all left a deficiency to be made good by Nansen himself on the eve of departure.

The main object of expenditure, of money and brains alike, was the ship. Plan after plan was rejected, until every conceivable source of weakness had been removed. As finally evolved and constructed the *Fram* (Forwards), was a massive wooden vessel of 402 tons, schooner-rigged with three masts, and having engines of 220 horse-power. Her sides were of many layers of the toughest wood, up to twenty-eight inches in total thickness, with no external projections to give the ice a hold; her beams, stays, and bulkheads were of proportionate stoutness, and very numerous, all strongly clamped together; from the water-line downwards her sides ran together quickly, giving an almost wedge-shaped section, but with no flat surfaces. Internally she was fitted with every consideration for warmth and comfort, electric light being installed, and the best of heating-stoves and cooking apparatus provided. Large stores of coal and oil were carried; preserved foods in quantities suggesting luxury; a library of books; games to while away the long winter night; firearms and ammunition in plenty; and the best scientific instruments of all kinds that could be obtained.

The crew of twelve was selected with the greatest care from among hundreds of applicants from all parts of the

world. Sverdrup, the captain of the *Fram*, had been one of Nansen's companions in the Greenland expedition. Scott-Hansen, a naval lieutenant, took the management of the meteorological and other observations. Blessing, the doctor, was also botanist. The rest were skilled seamen or mechanics, who had passed a most stringent medical examination. Lieutenant Johansen, of the Naval Reserve, who shipped as stoker, was afterwards Nansen's sole companion on the ice for nearly two years. All were Norwegians.

The *Fram* sailed from Lysaker Bay on Midsummer Day, 1893. It had been decided to reach the New Siberian Islands by the north-east route in preference to Behring's Straits, and there was no time to waste if the journey was to be accomplished before winter closed in. The start was hardly propitious; the *Fram* proved a villainous sea boat, and that bugbear of arctic voyagers, early ice, was soon encountered off the Siberian coast. At Yugor Strait, south of Novaya Zemlya, a short halt was made to pick up the team of thirty-four dogs, collected for them in that region by a Norwegian named Trontheim. Progress was slow through the Kara Sea, and for some time it seemed doubtful if they would weather Cape Chelyuskin, the most northerly point of the Old World, before being caught by winter. However, matters improved. Once round the cape, open water was found and good time made until the New Siberian Islands were approached, and the *Fram's* head turned due north, on September 18th. The edge of the pack-ice was reached at the end of the month, and the *Fram* finally frozen in

on October 2nd. The drift had begun which was to last for nearly three years.

The *Fram* was moored alongside a thick old floe, and soon beset with solid ice, around and below. All was made snug. The rudder and screw were unshipped and hauled on deck, the engine dismantled and its parts packed away in safety, and a windmill erected on deck for making the electric light. Now came a critical time, for all depended upon how the vessel behaved when subjected to the deadly ice-pressure which had put an end to the hopes and lives of so many arctic adventurers. The nature of this pressure should be explained for the better understanding of much that follows. The vast ice-field is never still. Currents, tides, and winds are always at work upon it, driving this way and that, and exercising a force which the tenacity of the thickest ice cannot withstand. Consequently, large masses, or floes, break off in the direction of the least resistance, leaving channels of open water, called lanes, which quickly freeze over. Then the direction of the pressure may change, and the floes impinge upon each other again, grinding their edges together, and the new ice between them, until large blocks break off and are forced downwards or upwards. Thus long mounds or ridges are thrown up, twenty feet or more in height, which continue to grow and spread until pressure abates. These are apt to appear on the shortest notice wherever a crack may have opened, even across the middle of the firmest floe.

"Pressure," says Nansen, "begins with a gentle crack and moan along the side of the ship, which gradually

sounds louder in every key. Now it is a high, plaintive tone, now it is a grumble, now it is a snarl, and the ship gives a start up. The noise steadily grows till it is like all the pipes of an organ; the ship trembles and shakes, and rises by fits and starts, or is sometimes gently lifted. There is a pleasant, comfortable feeling in sitting listening to all this uproar and knowing the strength of our ship. Many a one would have been crushed long ago. But outside the ice is ground against our ship's sides, the piles of broken-up floe are forced under her heavy, invulnerable hull, and we lie as if in a bed. Soon the noise begins to die down; the ship sinks into its old position again, and presently all is silent as before." The assault described was a comparatively gentle one. Later the *Fram* withstood infinitely severer ones with equal success.

The voyagers' first experiences of drifting were not reassuring, the movement until October 26th being generally southwards. Then the northward current asserted itself, and stood their friend from that time forward. But progress was seldom constant for long. A contrary wind always had effect, and often drove them back upon their course, or away to east or west, for weeks at a time. The track of the *Fram* upon the chart, as traced from daily observations, shows the eccentricity of this movement, in places crossing and recrossing itself in a perfect network of red lines. Optimism or disappointment ruled their minds according to the direction of the wind. But at no time was Nansen really doubtful of the ultimate success of his enterprise. It soon became merely a ques-

tion of how many years it would take them to reach home.

At the end of October the sun left them, and their first winter night began. Monotony of existence is wont to be baneful to both body and mind, but there was no stagnation on board the *Fram;* and health and spirits remained unimpaired throughout the long, dark months. There was always some useful work to be done; daily observations to be made — meteorological, astronomical, magnetic; temperatures of air and water to be taken; the depth of the sea and the nature of its bottom to be tested. A smithy was set up on deck, and carpenter's jobs were seldom wanting. Then there were dogs to be tended and exercised, and broken-in to sledge work. The crew were also taught the use of *ski*, or snowshoes, to which they might have to trust in case of disaster to the ship. The ice-field gave a first-rate exercising ground, and daily journeys over its rough surface kept the men in excellent condition.

When the working-day was done, comfort and good-fellowship reigned in the saloon. There was no stint of food, drink, or tobacco, while cards, games, and books provided amusement. A newspaper was started on board. Every excuse was utilised for holding festive celebrations. Nor were the enlivening strains of music wanting, instrumental or mechanical. Altogether the party seems to have lived "as jolly as sandboys."

The intense cold had no terrors for these hardy Norsemen. "The *Fram*," we read, "is a warm, cosy abode. Whether the thermometer stands at 22° above zero or

22° below it, we have no fire in the stove. The ventilation is excellent, especially since we rigged up the air-sail, which sends a whole winter's cold in through the ventilator; yet in spite of this we sit here warm and comfortable, with only a lamp burning. I am thinking of having the stove removed altogether; it is only in the way. At least as far as our protection from the cold winter is concerned, my calculations have turned out well. Neither do we suffer much from damp. . . . These are extraordinary fellows for standing the cold. With the thermometer at 22° below zero Bentzen goes up in his shirt and trousers to read the thermometer on deck." Hansen is elsewhere stated to have faced, in even lighter apparel, 40° below zero. At times the thermometer stood at 52° or 54° below zero. Then "the cold is visible; one's breath is like cannon smoke before it is out of one's mouth; and when a man spits there is quite a little cloud of steam round the fallen moisture. The *Fram* always gives off a mist, which is carried along by the wind, and a man or a dog can be detected far off among the hummocks by the pillar of vapour that follows his progress."

The dogs helped considerably towards keeping things lively. These half-wild creatures were kennelled on the ice, and allowed a good deal of liberty, which they not infrequently used to fall upon and destroy one of their fellows. Some of them also fell victims to bears; but the wastage was made fairly good by the birth on board of two litters of puppies—there were others later—about half of which were reared.

Excitement of a keener kind was provided by the

periodical visits of bears. The polar bear does not hibernate like his brown brother, but roams over the icefields all the year round, as much at home in the water as on the ice, and apparently never suffering very severely from want of food. His flesh is good eating, particularly to those who can obtain no other fresh meat, so his appearance, drawn by the sweet scents of the *Fram's* kennels and refuse-heaps, was always a signal for a rush for rifles and cartridges. Sometimes these visits had tragic accompaniments; one unusually hungry customer actually took two dogs from the deck, unknown to the watch, and devoured them on the ice. On the same occasion Peter, the harpooner and comic man of the party, had a narrow escape, the villainous bear seizing him by the hip as he scrambled on board, bravely defending himself with his lantern! This bear, as most others, was ultimately shot and eaten.

The formation and thickness of the ice-sheet is a subject of great interest. The thickness is not so great as might be expected, and is caused more by packing than by direct freezing. The floe to which the *Fram* was moored measured about 11½ feet. Curiously enough, the increase is more rapid in summer than in winter, owing to the melting of the snow. The fresh water sinks through the crust, but does not mingle with the salt, forming a layer which quickly freezes to the nether surface of the ice. Thus supplies of drinking-water are everywhere obtainable. At the pressure-ridges, of course, the thickness is greatest, but the highest hummock

Nansen encountered did not exceed thirty feet from the water-level.

On February 16th the mirage of the sun appeared on the horizon, and on the 20th a festival was kept to celebrate the arrival of the luminary himself. He did not appear, so another festival was justified for the day on which he should choose to show himself. Living thus merrily, it is not surprising to read that every member of the crew increased substantially in weight during the winter. The *Fram* was now only a few minutes of latitude north of the spot where she had been originally frozen in. Happily the winds of summer proved more favourable, and the autumn equinox found her fairly well advanced, having made a net gain of 3° 9′ of latitude. At this rate of progress it would have taken another $4\frac{1}{3}$ years to make Spitzbergen. During the following winter the pace increased, though at the same time the course tended more quickly westwards than Nansen had expected.

The summer months passed pleasantly enough, and were spent in scientific research, expeditions over the ice, and the building of six kaiaks, or skin-boats, on the Eskimo model. There was also boating and bathing in the freshwater pools on the ice, festivities as usual, with bird-shooting and an occasional bear-hunt for variety. The poor dogs suffered grievously at times from the heat. Experiments were made in sledging to learn the hauling capacities of dogs and men. The closing in of the second winter found all in excellent spirits.

In November the *Fram* was in latitude about 82° 30′,

and, though things were going fairly well, Nansen began seriously to consider a plan he had had in his mind from the beginning. It was clear that their present course, if continued, would miss the Pole by quite 5°; the explorer's idea was to try to cover the intervening distance by the aid of sledges and dogs, taking with him only one human companion. The scheme involved the greatest risks. Once out of touch with the *Fram*, there could be no thought of finding her again. So from whatever point they might reach in their "dash for the Pole" they would have to make their own way back to land and safety. Nansen was contemplating a journey of some thousand miles over pack-ice! From latitude 83°, near which they would quit the ship, the distance to the Pole is 483 miles. The nearest known land lies 460 miles away in the opposite direction. From his experience gained in Greenland Nansen thought it might be done, and he decided to make a start in the following spring. Lieutenant Johansen, the ex-stoker and acting-assistant meteorologist, was selected as his companion. Sverdrup, whom Nansen would have preferred, being captain of the ship, could not be spared.

The second winter was spent in preparing for this journey. Sledges and kaiaks were completed, the values of different foods tested, and the quantities of stores to be carried worked out with the minute forethought which always characterised the expedition.

With the New Year came a violent and dangerous attack upon the *Fram* from a pressure-ridge. For several days her fate seemed to hang in the balance, and the

crew had hastily to drag out their bags and stand by on the ice, while the floes thundered round them. But the *Fram* triumphed. Nansen's diary tells us: "Had this attack on the *Fram* been planned by the aid of all the wickedness in the world it could not have been a worse one. The floe, seven feet thick, had borne down on us on the port side, forcing itself up on the ice in which we are lying and crushing it down. Thus the *Fram* was forced down with the ice, while the other floe, packed up on the ice beneath, bore down on her, and took her amidship while she was still frozen fast. As far as I can judge she could hardly have had a tighter squeeze; it was no wonder she groaned under it, but she withstood it, broke loose, and eased. Who shall say after this that a vessel's shape is of little consequence? Had the *Fram* not been designed as she was we should not have been sitting here now. Not a drop of water is to found in her anywhere."

On March 13th, 1895, after two false starts, the little expedition set out into the unknown. Nansen has been bitterly criticised in some quarters for thus abandoning, as was said, his companions in the time of danger. His action needs no defence. In the first place, he was only carrying out the prime object of his undertaking, to get as near to the Pole as possible. Secondly, the *Fram*, with her experienced captain and crew, was perfectly capable of taking care of herself, and was not considered by her own people to be in any danger whatever; whereas Nansen and his companion were taking their lives in their hands.

At the start their equipment consisted of a sledge for

each man, with a kaiak strapped on top, packed with personal outfit, instruments, provisions, and other necessaries, and a third sledge loaded with sacks of food for men and dogs. The three dog-teams totalled twenty-eight animals. As the stores dwindled and the loads lightened the dogs would be killed off and used as food for the survivors. A gun apiece was carried, throwing both shot and ball, and a limited stock of ammunition; also a tent, sleeping-bags, and cooking apparatus. It was calculated that when the dogs gave out the sledges would be light enough to be man-hauled.

From the first progress was slower than had been reckoned on, and it soon became clear that to reach the Pole was beyond the bounds of possibility. Pack-ice proved no more easy to traverse near the Pole than farther south, and the usual miseries suffered by arctic travellers, of managing unruly dogs, righting upset sledges, and carrying them over piled-up ridges, had to be undergone; till they crept exhausted into their tent and sleeping-bag after covering but eight or nine miles in the day. Now and then a stretch of level ice enabled them to do as much as fourteen miles. The dogs were a constant trouble, and soon began to lose condition. In April lanes began to open in the ice, worse obstacles than the pressure-ridges, for often long deviations were necessary to find a crossing-place. Difficulties increased, until progress became almost impossible. On April 8th Nansen writes: "The ice grew worse and worse, and we got no way. Ridge after ridge, and nothing but rubble to travel over. We made a start at two o'clock or so this

morning, and kept at it as long as we could, lifting the sledges all the time, but it grew too bad at last. I went on a good way ahead on snow-shoes, but saw no reasonable prospect of advance, and from the highest hummocks only the same kind of ice was to be seen. It was a veritable chaos of ice-blocks, stretching as far as the horizon. There is not much sense in keeping on longer, we are sacrificing valuable time and doing little. If there be much more such ice between here and Franz Josef Land we shall, indeed, want all the time we have. I therefore determined to stop and shape our course for Cape Flegely." The latitude was 86° 13·6′, "Farthest North"* by a good margin.

The miseries of a retreat always exceed those of an advance, so we have now to follow our travellers through the most painful chapters of their story. The whole summer was spent in a bitter struggle to reach land before winter should descend upon them. One by one the dogs were slaughtered to keep the survivors alive. Even "Kvik," the good mother of puppies, had to be sacrificed. The loads grew lighter, but rations shorter in proportion, and even more numerous became the lanes to be circumvented and the ridges to be surmounted. With wonderful endurance the pair plodded on, buoyed up with the hope of sighting land, or open water on which they could use their kaiaks. By June 16th they were reduced to three dogs, and things began to look somewhat desperate. However, a few days later they saw and shot their first seal, which meant food and fuel for over a month. The

* Nansen's record has since been broken by the Duke of Abruzzi.

lanes grew still more numerous and wider, until at length the kaiaks had to be brought into use for ferrying over. The two were lashed together and the sledges secured across their deck. The dogs jumped on board and all were soon at the other side; but then came the labour of packing the sledges again. Bears now began to appear, and a dam and two cubs were killed, providing plentiful food while the travellers lay weather-bound at "Longing Camp." This was a noteworthy halting-place, for from it they caught their first sight of land, on July 4th, though they did not recognise it as such until another day's journey had been completed. "It has long haunted our dreams, this land, and now it comes like a vision, like fairyland. Drift-white, it arches above the horizon like distant clouds, which one is afraid will disappear every minute. The most wonderful thing is that we have seen this land all the time without knowing it. I examined it with the telescope from Longing Camp in the belief that it might be snowfields, but always came to the conclusion that it was only clouds, as I could never discover any dark point. Then, too, it seemed to change form, which, I suppose, must be attributed to the mist which always lay over it; but it always came back again at the same place with its remarkable regular curves." So they pitched their tent, and had the regulation feast. The menu is worth giving: "lobscourse made of potatoes (for the last time but one, we had saved them long for this occasion), pemmican, dried bear's and seal's flesh, and bear tongues chopped up together. After this was a second course consisting of bread crumbs fried in bear's

grease, also food and butter, and a piece of chocolate to wind up." This land was a hitherto undiscovered island north-east of Franz Josef Land. It proved to be further off than they imagined. The drift carried them away to the west, and the lanes grew more and more difficult to negotiate. At last, after a fortnight's incessant toil, they reached open water, to their infinite comfort.

Meanwhile a startling adventure had befallen them. Having attained the further side of a lane, Johansen had landed and Nansen was engaged in pulling his sledge on to the ice. Suddenly the latter heard the words "Take your gun!" He turned, and saw Johansen on his back, holding an enormous bear by the throat. Nansen was equal to the occasion. "My first thought was to throw myself into the water over the kaiak and fire from there, but I recognised how risky it would be. I began to pull the kaiak, with its heavy cargo, on to the high edge of the ice again as quickly as I could, and was on my knees pulling and tugging to get at my gun. I had no time to look round and see what was going on behind me, when I heard Johansen quietly saying, 'You must look sharp if you want to be in time.' Look sharp? I should think so! At last I got hold of the butt-end, dragged the gun out, turned round in a sitting posture, and cocked the shot-barrel. The bear was standing not two yards off, ready to make an end of my dog 'Kaifas.' There was no time to lose in cocking the other barrel, so I gave it a charge of shot behind the ear, and it fell down dead between us."

Kaiaking was comparatively easy and pleasant work,

and by paddling, hauling, and sailing they were able, on August 14th, to set foot on firm land for the first time for two years; not on the island they had originally sighted, but upon another of the same archipelago. They were only just in time, for a very few more days of coasting were possible before the ice closed in and compelled them to go into winter quarters. But all anxiety for the future had passed away, for they were now in a land of bears, seals, and walruses, the last named often aggressive and dangerous neighbours for the frail kaiaks. So it was easy to lay in large stores of food and fuel. A hut was built of stone and snow, roofed with hides supported by driftwood, and in this they spent the winter in comparative comfort and pleasant anticipations of reaching home in the coming summer.

We can only very briefly follow their further fortunes. In May they resumed their southward journey, grimy figures with long black hair and beards, and skin and clothing soaked with blubber-oil and soot. By sailing and sledging they passed from island to island—once a kaiak went adrift and Nansen had a desperate swim to recover it—until on June 23rd the welcome barking of a dog struck their ears. They found themselves in the presence of the English expedition under Jackson, which lay encamped at Cape Flora, on the south-west coast of the Franz Josef archipelago. Here they enjoyed the heartiest of welcomes, and revelled in their return to civilisation until the arrival of the ship *Windward* on July 26th with stores for Jackson's people. A few days later that vessel carried them to Vardö haven, and the

telegraph told the world of their safe return. At Hammerfest, whither his wife had travelled to meet him, Nansen received the welcome news that the *Fram* had come to port in good condition, with all well on board. Thus was his happiness completed.

The later adventures of the *Fram* call for no description. After the "desertion" of her chief, she continued to drift north and west, with deviations, as before, to south and east, but never got so far north as Nansen. The third winter passed without noteworthy incident, and in the following summer, having been cleared by blasting of adherent ice, she gradually forced her way into open water off the north coast of West Spitzbergen.

Note.—The quotations in this chapter are made from *Farthest North*, by the kind permission of the author, Dr. Fridtjof Nansen, and the publishers, Messrs. Archibald Constable and Co.

A typical Arctic scene. To the right is the skeleton of the shed used in the Andrée Expedition for the construction of the balloon.

CHAPTER XVIII

TOWARDS THE POLE IN A BALLOON

ON August 14th, 1896, the *Fram* and her gallant crew, homeward bound from the Polar regions, ran into the Dansk-Gatt, a strait between Dane's Island and the Island of Amsterdam, to the north-west of Spitzbergen. In this out-of-the-way spot Captain Sverdrup and his companions (Nansen had been left behind among the floes) found three men eagerly awaiting the chance to commence a voyage which, in the daring of its conception, excelled that of the *Fram* itself. Their vessel was not a structure of wood and steel, designed to withstand the crushing of the ice; it contained no engines, no luxurious fittings to protect the traveller against the cold.

On one bank of the strait rose an octagonal wooden shed, seventy feet high, and inside this a fully-inflated balloon tugged impatiently at its moorings.

The balloon crew—Messrs. Andrée, Strindberg, and Fraenkel—cast anxious eyes at the small pilot balloons launched from time to time to ascertain the direction of the wind, which since the inflation had been blowing unfavourably.

The idea of seeking the North Pole along the trackless paths of the air had, two years previously, matured in the fertile brain of Salomon Auguste Andrée, a Swede, who had distinguished himself as Professor in the Technical School of Stockholm, and as chief engineer to the Swedish Patent Office. An innate love for scientific aerostation led him, in 1893, to make the first of a number of balloon ascents, during one of which he very nearly lost his life. Nothing daunted, he determined by experiments that the course of a balloon could be materially directed by the aid of guide ropes and sails; and early in 1895 he presented to the Academy of Sciences a plan for exploring the regions of the North Pole in a special balloon. He estimated the cost at rather more than £7,000—a sum which was promptly subscribed by the King of Sweden, Baron Dickson, Mr. A. Nobel, and other smaller donors.

Andrée then travelled over Europe to learn the opinion of scientific men about his projected enterprise, and to collect samples of the tissues used in the manufacture of balloons. His choice finally fell on Chinese pongee silk, which had been largely employed by M. H. Lachambre, the famous Paris balloon-maker, to whom the construction of the aerostat was entrusted.

THE CONSTRUCTION OF THE BALLOON

So great were the risks attaching to the voyage for which the balloon was intended that the utmost care was devoted to the manufacture of every detail of the aerostat.

The envelope, designed to contain 158,924 cubic feet

of hydrogen gas, may be described as a sphere terminating downwards in a slightly conical appendage. Its thickness varied in the different parts. The top, a disc of nearly twenty feet diameter, was of fourfold silk; the zone between the disc and a line thirteen feet one inch below the equator of the sphere, threefold; the remainder, twofold, with the exception of the appendage, which terminated in a large automatic valve, and was fourfold.

No less than 3,360 pieces of silk were used for the envelope, and every piece had to undergo severe tests before being incorporated. A special cement, unaffected by the balloon varnish, wet, or changes of temperature, joined those many pieces together. The length of seams totalled nearly 5,000 yards, made secure by about nine miles of stitching.

The envelope was made in two hemispheres, and finally joined at the "equator" line. It then received the last of its four coats of varnish. Two valves were fitted to it; one at the equator, the other thirty-nine inches higher: and, for use in emergencies, M. Andrée prescribed a "rending-flap" of $4\frac{7}{10}$ square yards, which could be torn out of the envelope by pulling hard on a special rope. As a protection against snow and rain a silk cover enclosed the upper part of the sphere.

The *net* was of hempen cords, interwoven, not knotted, at points where they met. At their lower ends they engaged with forty-eight suspending cords, which connected them to the ring on which the car was hung. The *car* itself was a basket-work cylinder, with one side of the bottom end sloped away, so that, when the car

should strike the ground, it would slide along on this flat surface, and not revolve. Two small windows lit the interior; and a hundred cords, terminating in buckles, were hung all round inside to take the place of shelves. The roof of the car would serve as an observatory, where the travellers would be stationed when not sleeping or eating down below.

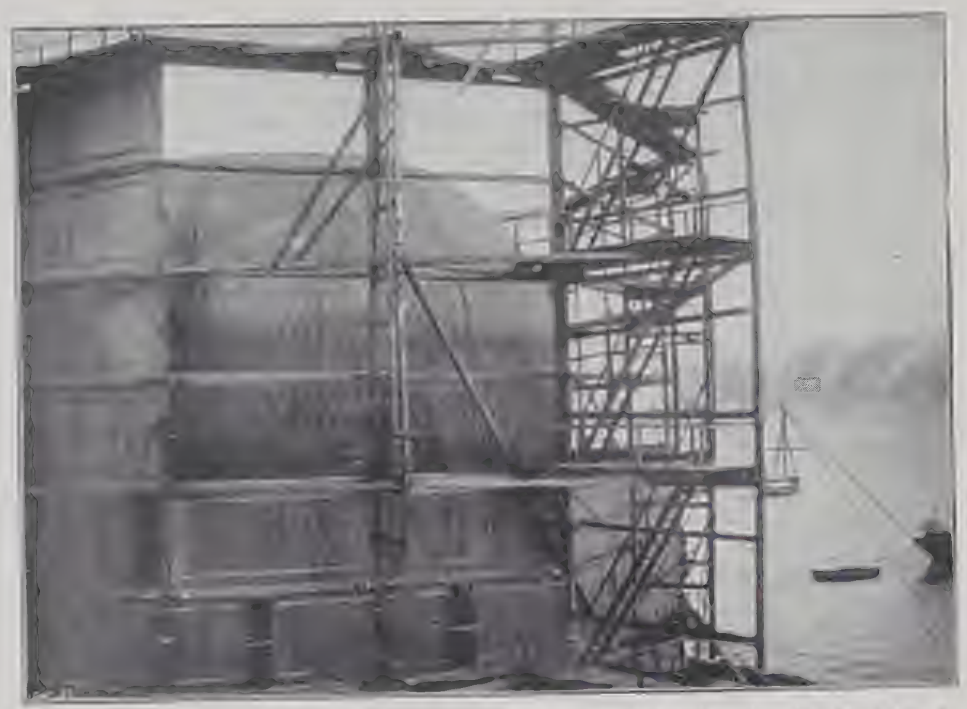
Three heavy guide ropes were supplied. Each consisted of several sections, held together by screw connections. In event of a rope getting caught in the ice, the aeronauts would be able to release themselves by twisting a crank at the car end. The lowest joint would then unscrew and drop the section which it supported, an ingenious arrangement of springs ensuring the detachment of the extreme section.

Provisions, sledges, boats, spars, etc., would be attached to the forty-eight suspending ropes so securely that no shock could throw them out.

By the end of April, 1896, the balloon was ready; and after being searchingly tested, was exhibited in the Champ de Mars, whither 30,000 people came to see the airship destined for so cold a journey, and to wish the three bold Swedish explorers all success in their dangerous enterprise.

It was then despatched to Gothenburg, where lay the little ship *Virgo*, of 300 tons, ready to convey the expedition to Spitzbergen, together with materials for building the balloon shed and inflating the balloon.

On June 22nd, M. Andrée and eight companions arrived at Dansk-Gatt, and at once proceeded to land



The shed in which Andrée's balloon was inflated. It could easily be taken to pieces and was brought to Spitzbergen in that form pieces all ready for fitting together. Inflation outside the shed would have been impossible on account of the strong winds blowing in the Polar regions.

their cargo. The next operation was to set up the shed, which deserves special mention.

"Designed in a very ingenious manner," writes M. Lachambre, "it was erected at Gothenburg, where the inhabitants could inspect it before it was dismantled for shipment. It is of octagonal shape, and consists of four storeys, each measuring 196·8545 inches in height. The various storeys are joined to each other by means of bolts; the last storey is surmounted by a balcony all round.

"In order to facilitate re-erection in Spitzbergen, the component parts of each storey are marked with marks of different colour. The floor of the shed is composed of timber work, all meeting in the centre, and made fast on the rocks with pieces of wood."

Before erecting the shed the site had to be cleared of deep snow. Violent storms interfered with the work, but eventually it reached completion. The balloon and hydrogen generators were then brought ashore, and, as soon as the weather permitted, inflation commenced.

The hydrogen gas was produced and prepared for the balloon in the following manner. A large lead-lined and air-tight vessel is partly filled with iron shavings, among which a mixture of sulphuric acid and water is admitted from a tank. The oxygen and sulphur elements of the acid combine with the iron, and free the hydrogen, which then passes through another chamber full of coke continuously flushed with water, which abstracts impurities from the gas. The moisture picked up from contact with the water is now removed by allowing the gas to pass over quicklime, which readily seizes on the oxygen

element of water, and leaves the hydrogen dry and fit for use in the balloon, where any condensation would cause trouble. The apparatus employed by Andrée had a productive capacity of 5,000 to 7,000 cubic feet an hour, but was allowed to produce only about half its full amount, so that the gas might be of the best possible quality. On June 22nd the inflation was completed, and the dome of the balloon could be seen overtopping the sides of the shed. Final preparations were made while the explorers waited for a wind. The provisions included all kinds of preserved food in tins, compressed bread, condensed milk, wines and spirits, fresh water, and butter, the fatty nature of which makes it a valuable item of diet in the polar regions. Aloft were hung compasses, barometers, photographic apparatus, a very light folding boat, sledges, snowshoes, picks, shovels, anchors, twelve cork buoys with a stoppered cavity for placing despatches in, carrier pigeons, and nearly two thousand pounds' weight of ballast. It was calculated that a judicious casting-out of the ballast would enable the balloon to float for at least thirty days.

Everything was ready but the wind. This obstinately blew from the north, veering round occasionally to encourage false hopes. But winter was now drawing in, and, to his bitter disappointment, Andrée had to reconcile himself to ordering the release of the gas on August 17th. Nothing now remained but to pack up the balloon and return to Gothenburg, in the hope of better success on a future occasion.

The following May saw the expedition again on its

way to Dansk-Gatt, this time in a Swedish gunboat. The party found the shed somewhat battered by the winter storms, but not so seriously injured as to prevent its restoration in a couple of weeks. Once more the balloon was inflated, and furnished with its cargo of food and mechanical appliances. Sailors climbed about the silken dome testing all the seams with strips of light material soaked in acetate of lead—which blackens on coming into contact with sulphuretted hydrogen gas.

Andrée expected that the balloon would be carried either towards Siberia or Alaska, since the huge icy mass of Greenland chills the surrounding air to such an extent as to cause currents to radiate from it in all directions, especially in the lower strata of the atmosphere. Should unforeseen circumstances compel a descent on to the ice-field, their boat, sledges, and snowshoes would enable them to return after the manner of Nansen and Johansen, who had remained for fifteen months alone on the floes, with only three months' provisions. He therefore counselled his friends not to feel anxious if they heard nothing of him for a year after his departure.

To liberate the balloon was no easy matter, owing to the many projecting parts of the shed against which the envelope might strike as it rose. These points were therefore well padded with felt by the carpenters.

Once again everything was ready for the "launch," except the wind. This blew steadily from the north-west. But on July 6th the long-wished-for south wind arrived, bringing, however, wet and stormy weather with it. On Sunday, the 11th, the sky was bright again, and

Andrée decided to start at once. He wrote several telegrams, one of them addressed to the King of Sweden, and with his companions entered the car. An eye-witness thus describes the ascent:—

"Amongst the cordage of the car are seen the three heroes, standing admirably cool and calm. At last the decisive moment arrives. 'One! Two! Cut!' cries Andrée in Swedish. The three sailors obeyed the orders simultaneously, and in one second the aerial ship, free and unfettered, rises majestically into space, saluted with our heartiest cheers. Behind the mountain that is sheltering us stormy winds are raging, and a current of air sweeps down from the summit and attacks the balloon, which for a moment descends rapidly towards the sea. The sailors rush to the boats to be ready to lend assistance to the explorers, whom they expect to see engulfed in the waves. Their alarm was of short duration; the descending movement soon becomes slower, and the car just touches the water and ascends again immediately."

The guide-ropes now caught some obstacle, but, thanks to the screw-joints, the lower sections were detached and the balloon floated away, amid the waving of last farewells. At last a range of hills intervened between it and the spectators.

And so three brave men passed from among their kind into the icy horrors that guard the Pole against man and his science. A fortnight later a pigeon was shot by the crew of a fishing boat, and on it was found a message from Andrée, dated July 13th, 1897, reporting good progress. After that, silence; and from that day to this

On the top of Andrée's balloon (seeing it in course of construction) projects a rope to discover the slightest leakage of gas. The longitudinal of the aerial car is secured by its connection to the canvas balloon. The gasbag was made of 9,820 pieces of silk, and held 158,924 cubic feet of hydrogen gas.

nothing more has been heard of the balloon or its passengers except vague reports from Siberia.

The ill-fated attempt has been pronounced foolhardy. But was it really so? Had not Andrée taken every possible precaution in the preparation of the balloon? Was he not provided with the most suitable outfit that civilisation could afford? If he *had* returned would he not have been welcomed as a hero, and his success quoted as a refutation of narrow-minded prejudice? Many men have emerged safely from enterprises quite as desperate.

Perhaps time will bring to light some relics of the travellers, since the name of the expedition was plainly stamped on many parts of the balloon and its accessories. We may then learn how these brave men met their fate. Till then we must be content to merely add the names of Andrée, Fraenkel, and Strindberg to the sad roll of those who have lost their lives in the cause of exploration. These gallant Swedes have in no way advanced our knowledge of the Polar regions; but their brave attempt is not without its romance.

Note.—The author has to thank Messrs. Archibald Constable and Co. for permission to quote from *Andrée and his Balloon.*

CHAPTER XIX

A PEEP INTO ESKIMO LIFE

THE fortunes of so many arctic explorers have been affected by their relations with the natives of the far northern regions that a sketch of the character, customs, and conditions of life of the Eskimos, perhaps the most noteworthy among these indigenous populations, will give a very useful insight into the stern conditions which govern existence in the realms of everlasting ice. Information in full and most interesting form is given us by Dr. Fridtjof Nansen in his *Eskimo Life*. Icebound for a whole winter upon his arrival in the Danish colony on the west coast, after his successful first crossing of Greenland, while waiting for the vessel which should take him home to Europe, the author lodged in the hovels of his Eskimo friends, eating their food and joining in their occupation, mastering their language and studying intimately their family life; thus in every way qualifying himself to write an accurate and sympathetic account of this primitive and, as he calls it, lovable race.

Originating, according to Dr. Rink, the great authority on the subject, in the interior of Alaska, the Eskimos moved northwards to the shores of the Arctic Ocean, and

spread along the coast eastwards as far as the western parts of Greenland, where they were discovered by the first Norse explorers, Erik the Red and his contemporaries. Subsequently they doubled Cape Farewell and occupied the east coast also. During the process of extension they came into conflict with the early Norwegian colonies, against whom they prevailed, more by the peaceful power of absorption than by force of arms, for there is no less warlike race on earth than the Eskimos. More recent settlements by Europeans have done them greater harm, and they are now, says Nansen, sinking through poverty to extermination, as aboriginals will do when brought into contact with civilisation; nor can the beneficent rule of the Danish Crown do much to help them.

Let Dr. Nansen describe the Eskimo as he meets the eye:—

"He has a broad, round face, with large, coarse features; small, dark, sometimes rather oblique eyes; a flat nose, narrow between the eyes and broad at the base; round cheeks, bursting with fat; a broad mouth; heavy, broad jaws; which, together with the round cheeks, give the lower part of the face a great preponderance in the physiognomy. When the mouth is drawn up in an oleaginous smile, two rows of strong white teeth reveal themselves. One receives the impression, upon the whole, of an admirable chewing apparatus, conveying pleasant suggestions of much and good eating. But, at the same time, one traces in these features, especially in those of the women, a certain touch of ingratiating, petted softness."

To complete the picture we will add that the Eskimo is of small to medium stature, with well-developed arms and shoulders, but deficient lower limbs; his skin is of a brownish yellow, from his utter uncleanliness always darker than Nature made it. He is, in short, the natural product of his conditions of life; his food is of necessity oily; and oily is he within and without. Intellectually he reaches a very respectable standard, being quick to learn, and remarkably ingenious. His chief characteristics are imperturbable good humour and patience. Even Eskimo children never quarrel, and words of abuse are not found in the language. His first social law is to help his neighbour, the next to show hospitality to strangers. His integrity in word and deed is surprising, but his morality in other ways is very primitive.

In Greenland, even in summer, only minute portions of the earth's surface ever see the sun; consequently—apart from the traffic with Europe, which we will lay aside—the inhabitants are dependent upon the sea for the necessaries of life, food, clothing, fuel, and all else. For the Greenlander the sea practically means the seal. Upon the seal is built the national existence, and when the seal goes—and it is going fast—the Eskimo must go too. Meanwhile, as the herds are still fairly numerous, the Greenlanders enjoy comparative abundance; but what the seal means to them we shall see as the different items of their outfit and subsistence come under consideration.

Let clothing have the first place. Both sexes dress very similarly. The *timiak*, or vest, is of bird-skins, with the feathers inside, edged at neck and wrists with black

dog-skin, with a hood for the men. Above the timiak is worn the *amorak*, an outer vest of cotton, gaily embroidered for female wear. Trousers of sealskin clothe both sexes, and the footwear is the *kamik*, also of sealskin, in two layers, the inner with the fur on for warmth, the outer of waterproof hide. Between the layers is packed dry straw or sedge. Modern luxury has introduced white underlinen, which the ladies display in a fashion of their own, at the waist. All these for outdoor wear. Within the houses, where the temperature is high from crowding, costumes are tropical in their simplicity. The men let their hair grow wild; the women gather it into topknots, tied with ribbons of divers colours. Children are *licked*, not washed.

The Eskimo's highest claim to fame lies perhaps in his astonishing skill in hunting and the ingenuity with which he has perfected his tools and weapons from the very simplest materials. Stone, driftwood, bone, and skins are all he has to work with; yet he is more than a match for such formidable game as the bear, the walrus, and the whale. Seals are, of course, his principal quarry. These, as well as birds and fish, he hunts in deep water, following them at all seasons and in almost any weather in his kaiak or skin-boat—by far the most important article of his equipment.

A marvel of ingenuity, the kaiak is built upon a very light framework of driftwood, the ribs being sometimes of osiers, which grow sparsely on land. Over this foundation the skins of various kinds of seals are stretched and sewn together, below and above, forming a water-tight

full-decked boat, tapering evenly fore and aft, with a circular opening amidships, just large enough to admit the legs and thighs of the hunter, and girdled with a wooden hoop, wide enough to project about an inch above the deck.

A kaiak of average size is 6 yards in length, 18 inches in maximum breadth, and not more than 6½ inches deep. A waterproof jacket of skin covers the man's body and arms—in rough weather his head also—and reaches down to the deck-ring, round which the lower edge is drawn tight with a string. Thus boat and jacket form a water-tight whole, in which a man can pass through breakers, and even capsize and right himself again without shipping a drop of water. A double-bladed paddle applies the motive power.

The management of this top-heavy craft is only acquired by early and constant practice; but, to quote Dr. Nansen: "a kaiak man who has entirely mastered the art of righting himself can defy almost any weather. If he is capsized, he is on an even keel again in a moment, and can play like a seabird with the waves, and cut right through them. If the sea is very heavy, he lays the broadside of his kaiak to it, holds the paddle flat out on the windward side, pressing it against the deck, bends forward, and lets the wave roll over him; or else he throws himself on his side towards it, resting on his flat paddle, and rights himself again when it has passed." Nevertheless, cases of drowning in consequence of accident are numerous.

The Eskimo's principal weapon is the harpoon, in-

genious and complex. The stout shaft is of driftwood, headed with bone. To the head is secured, by means of a socket and thongs, a long bone foreshaft, of walrus or narwhal tusk, the end of which fits into the harpoon-head proper, of sharp flint or iron. The line is fastened securely to the harpoon-head, passed back to the shaft to hold the three parts in position, and is attached at its other end to an inflated bladder. When the weapon is struck into a seal, flexion of the thong joint frees the shaft from the head, and it rises to the surface clear, leaving the head firmly lodged in the animal's body. The drag of the bladder "plays" the seal effectually, until the hunter can kill it with his lance. Besides the weapons named, the kaiak man takes with him a bladder-dart (a smaller kind of harpoon), a bird-dart, a knife, and a throwing-stick. The last is a contrivance by the aid of which he hurls his harpoon or dart with greater force and accuracy. All these implements are carried on the deck of the kaiak, pushed under straps which cross from side to side. A dead seal also is made fast to one of these straps, and so towed. Sometimes a hunter will paddle home towing as many as four seals. It is difficult to imagine more glorious sport than these brave fellows enjoy—though it is perhaps too fully spiced with danger for all tastes—and the "bag" has its solid value, from the bristles on its nose to its tail flippers.

The walrus is a much more formidable beast of chase, both from his huge size and his readiness to defend himself, and is generally attacked by several hunters in company. For hunting whales they use, or did once use

—for the sport is now uncommon—the large woman-boats, so called because they are rowed by the women. These boats are as much as forty feet long, undecked, and made of the usual driftwood and skins. In former times, before the missionaries discouraged the practice, it was the custom for each family to spend the summer months cruising in its woman-boat, with tents and all other belongings on board, landing to encamp on likely spots, while the men hunted by sea or pursued the reindeer. For the winter a house would be built, where they lived upon the accumulated supplies until the ice broke up again and they could continue their wandering. Such a nomadic life did not please their pastors and masters, as it weakened their control and now it is only practised on the less settled east coast.

Winter houses are built of stones and turf, with a low roof and the floor below ground-level. Entrance is gained by a low door approached by a shallow tunnel. Train-oil lamps burn night and day, for warmth as well as light. A sleeping-bench 6 ft. 6 in. wide runs the length of the long wall opposite the door, divided off into stalls, one for each of the several families which own the house. On this they sleep at night, tight-packed, with their feet to the wall, and sit or lie during the day. Other furniture is unknown. House-cleaning used to be economically managed by taking off the roof and letting the rain do the work. Now methods of civilisation are more or less followed.

Like most primitive people, the Greenlanders eat very heavily when they are hungry, and can go for a long time

between meals. Their food is almost exclusively flesh and blubber, often eaten frozen or raw. Dr. Nansen formed an opinion of blubber which we might not share.

"Dainty readers," he writes, "will of course shudder at the very thought of eating raw blubber, but I can assure them that, especially when quite fresh, it is very good. It has a sweetish, perhaps rather mawkish, taste, reminding one of cream, with nothing of what we should call an oily or fishy flavour; this does not make itself felt until the blubber has been boiled or roasted, or when it has grown rancid." They have other dishes which certainly could not be recommended. About the only things they will not eat appear to be ravens. The dish containing the food is placed in the middle of the floor, and the company hand-feed themselves from the benches. Coffee is drunk, often to excess. Tobacco is chewed or smoked. Brandy, fortunately, is hardly obtainable, and is valued accordingly, as the producer of intoxication.

The women enjoy an important share in the economy of a household. Roughly speaking, the man hunts, the woman does the rest. She does all the skin work, preparing and sewing, even to the covering of indispensable kaiaks; and consequently becomes very clever with her needle. Wives are easily got rid of, by divorce or exchange; but as a rule they enjoy an established position, especially if the mothers of boys. A widow with such a family is quickly consoled. The good old custom of carrying off a bride by force still holds, especially upon the east coast. Etiquette requires a good show of resist-

ance upon the part of the bride, though her relations never consider it to be their duty to interfere.

Christianity was introduced into Greenland by the Norwegians in 1721, and spread by methods always diligent and sometimes forceful. Yet its progress has been disappointing. Many of the inhabitants profess religion, but superstition seems as powerful as ever, and the *angekoks*, or medicine-men, have great influence. Their weird heathen beliefs embrace two heavens, but no hell. It pictures two souls, more or less tangible, inhabiting the same body; and peoples the snowfields and the deep sea with demons of different kinds. The nearest conception they have of a Supreme Being centres round the *tornat*, or devils, and their master, the *tornassak*. In common with the Hebrews of old they have the greatest dread of touching a dead body; in fact, so deep is their aversion that they will not venture to rescue a person in imminent danger of death, lest the separation of soul and body should take place during the process. They have, however, a deep faith in the power of charms and amulets. "Thunder they believe to be produced by two old women fighting for a dry and stiff skin, and tugging each at her end of it; in the heat of the contest they upset their lamps and thus cause the lightning."

They attribute most of the evils of life to the malice of witches and wizards. Dr. Nansen himself was once taken for a *kivitok*, or demon, by a man, who, suddenly roused out of sleep, nearly had a fit from terror.

As has been already mentioned, the Eskimos are a

declining race; and their extermination, if not actually in sight, must still be reckoned only a matter of time. Intercourse with Europeans has brought poverty; for the food which might keep a family in comfort is easily exchanged for other luxuries. The use of firearms has wasted the stock of game, and, worse still, the general destruction of seal-life throughout the whole North Atlantic and Arctic Oceans threatens to rob them of their very staff of life. Tubercular consumption, another alien and terrible immigrant, is prevalent, rapidly increasing its ravages. Finally, the Danish colonies are an expense to the mother country, and Danish rule alone seems to stand between the Eskimos and utter destruction.

Note.—The author has to thank Dr. Fridtjof Nansen and Messrs. Longmans, Green, and Co. for permission to quote from *Eskimo Life*.

CHAPTER XX

IN THE HEART OF THE SOUTHERN ICE CONTINENT

IN THE ANTARCTIC REGIONS

"AS far apart as the poles." This is an expression that we know very well; and one we use to express the utmost dissimilarity between the natures of persons, things, or circumstances. Geographically it signifies a distance of over 12,000 miles; a formidable gap indeed, but easily spanned by the turning over of a page.

So in this chapter we will turn our attention from the arctic regions to Antarctica, as that great icy tract has been named which, in area equal to Australia, stretches for hundreds of miles in all directions round the southern hub of the world.

Since 1843, when Sir James Clark Ross returned to England from his wonderful journeys below the antarctic circle, the interest of polar explorers has been centred almost entirely on the frozen North. When we talk of "The Pole" we mean the *North* Pole; when we wish to describe intense cold we call it arctic. But since 1892 the tide has turned somewhat in favour of the land of

the Aurora Australis; and at the moment when these lines are penned the public is eagerly awaiting the arrival home of the men whose proud record it is to have penetrated "Furthest South."

The reason for the comparative neglect of Antarctica is easily understood after a reference to the map. By far the greater part of the dry land of the globe is included in the northern hemisphere. The continents, with the exception of Australia, taper southwards, as if anxious to show their toes to the South Pole; whereas on the north they are broad, forming an almost complete land circle round the icy regions of Arctica. As a consequence an explorer is able to get a much better "jump off" on his way to the North Pole than he is if he turns southwards, in which direction his base, New Zealand, is many hundred miles from the nearest antarctic floes.

Placing the latest expedition on one side for the moment, we will glance very briefly at the past history of antarctic exploration.

In ancient myths frequent mention is made of a southern land, which enclosed the Indian Ocean as Africa encloses the Mediterranean Sea. Old geographers held stubbornly to this belief even after Vasco da Gama had rounded the Cape of Good Hope; and the discovery by Magellan of Tierra del Fuego was considered by them to be but a promontory on the northern shore of a great continent, which in the sixteenth century the cartographers, Mercator and Ortelius, located with an exactitude that does great credit to their powers of imagination.

Subsequent voyages gradually drove the imagined coast-line further and further south; but it was left to an Englishman, the famous Captain James Cook, to knock the theory on the head in a manner that precluded its revival. We are reluctantly compelled to omit an account of this great navigator's expeditions, and to content ourselves with stating that in 1773 he crossed the South Polar Circle for the first time in the history of man, so far as we know it, and in 1774 reached a latitude of 71° 10′ S., breaking all previous records and those of many a decade after.

The vast southern continent had shrunk into an immeasurably smaller tract of ice-covered, ice-bound land. Its place was taken by boundless expanses of stormy seas. Cook's own opinion of what remained of the old fables to cling to was not enthusiastic: "Countries condemned to everlasting rigidity by Nature, never to yield to the warmth of the sun, for whose wild and desolate aspect I find no words; such are the countries we have discovered. What, then, may those resemble which lie still further to the south? It is reasonable to suppose that we have seen the best, being the most northerly. Should anyone possess the resolution and the fortitude to elucidate this point by pushing yet further south than I have done I shall not envy him the fame of the discovery, but I make bold to declare that the world will derive no benefit from it."

With the closing sentiment, whether it expresses ultimate truth or not, his successors have not agreed. Their actions prove that the Poles are magnetic to man's mind

The Furthest South sledge party advancing through a blizzard. So strong is the gale that their gloves have to be secured by a cord passing round the neck.

as well as to the compass. The resolution and fortitude to eclipse Cook's own achievement have been forthcoming, notably among his own countrymen.

The next great name is that of James Clark Ross, who, on February 23rd, 1842, reached 78° 10′ S., with his ships, the *Erebus* and *Terror*, far east of Cook's explorations. These vessels had been well equipped, both internally and externally, for battling with polar cold, and for a series of scientific observations. Sailing from Tasmania, he met the first iceberg in longitude 174 E., and struck Victoria Land a few days later. He saw mountains, and at once began to give them names. A high conical peak was entered on the chart as Mount Sabine, and the range to which it belonged as Admiralty Mountains. Below Mount Sabine he found a promontory, and called it Cape Adare. Then two volcanoes came in sight, styled in honour of his craft Erebus and Terror. He next traced the ice-barrier, fringing what he supposed to be land, for hundreds of miles eastwards, but was not able to effect a landing. In the course of his voyaging, which lasted for three years, he added enormously to the previous knowledge of the south polar regions. By the aid of deep-sea dredging he proved that coral insects, usually associated with the warmth of tropical seas, lived in the icy depth of the Antarctic Ocean. And the discovery of numberless schools of whales in these high latitudes proved of great value to the whaling industry. "If any man deserves to be regarded as the hero of Antarctic exploration," says Dr. Karl Fricker, "surely it is James Clark Ross."

MODERN EXPLORATION

The first people to set foot on the antarctic continent were the crew of the *Antarctic* despatched by Svend Foyn, a Norwegian whaler, to try their luck among the schools that Ross had seen. They landed at Cape Adare.

During the early "nineties" great efforts were made in Germany and Britain to stir up popular interest in the south polar regions, and to equip vessels which should conduct a series of scientific researches in antarctic waters. In 1895 the Belgians proved, by the despatch of the *Belgica*, that they did not mean to be behindhand. The same year, Mr. C. E. Borchgrevinck, who had gone with the *Antarctic* as a sailor before the mast, in order to make zoological observations, sought in England the means for equipping a ship with which he might still further extend his research; and, thanks to the generosity of Sir George Newnes, was able to sail from the Thames in command of the *Southern Cross*, on August 22nd, 1898. In the February following the crew landed at Cape Adare, and at once began to build a house in which they should spend the winter, and by the end of the month had completed it. The vessel was then sent back to New Zealand, with orders to return at the beginning of 1899. During the winter spent on the ice a sledge expedition reached 78° 50′ S., thus establishing a fresh record. The Magnetic Pole was located, and the general aspect of Victoria Land decided to be "a wide, elevated, mountainous country, with peaks rising to the height of between 10,000 and 12,000 feet above the sea-level, precipitating into the Antarctic Ocean innumerable broad glaciers, traversed by deep, yawning crevasses, which pre-

sent an almost insurmountable barrier to the progress of the traveller." Mr. Borchgrevinck has some interesting remarks on the icebergs. "They are in appearance of two distinct kinds, although, in my opinion, they have a similar origin. They are either discharged from what is ordinarily understood as a glacier, or broken from the big barrier in the extreme south. However, to my mind, this barrier is merely the northern extremity of a great ice-sheet sloping northwards from land near the South Pole, which is really nothing more or less than an immense glacier. The bergs discharged from a glacier, which has descended from a great elevation and been squeezed between immense peaks, will naturally have a more rugged appearance than those discharged from the gently sloping ice-sheet. The former are often overturned when forced into the sea, the latter break gently off through the great but steady pressure of the ice-sheet; and the iceberg will, even after the calving has taken place, maintain the character of the barrier or ice-sheet, from which it was derived." (*Geographical Journal*, October, 1900.) On one occasion, while exploring the foot of Mount Terror the gallant leader and companions witnessed the sloughing-off of an iceberg, attended by circumstances very trying to the whole party. A further quotation from his address to the Royal Geographical Society will inform the reader of this exciting experience:—

"I effected a landing at the foot of Mount Terror, taking with me Lieutenant Colbeck, Captain Jensen, and two sailors. The beach was formed by débris from an

overhanging rock about 500 feet above, and did not exceed 10 feet in width and about 4 feet in height.

"Shortly after landing, Lieutenant Colbeck, at my request, went back with the two sailors in the boat to fetch a camera, while Captain Jensen and I busied ourselves in collecting. Suddenly a tremendous roar commenced overhead. At the first moment the thought passed through my mind that the overhanging rock was coming down upon us. In the next I realised the dangerous fact, and communicated it to Captain Jensen, who simultaneously recognised that the glacier immediately to the west of our little beach was giving birth to an iceberg. Quick as thought the event followed. With a deafening roar a huge body of ice plunged into the sea, and a white cloud of water and snow hid everything from our view. There was absolutely nothing to be done, and we both foresaw what immediately afterwards followed. A tidal wave—if I so may term it, because of its similarity to such—a raging, rushing wave rose like a wall from the plunge of this million-ton mass of ice. It seemed rapidly to grow as it hurried towards our low ledge. We instinctively rushed to the highest part of our beach and stood close to the perpendicular mountain wall. The wave, which must have had a height of from 15 to 20 feet, seemed long in reaching us. It struck me first; lumps of ice dashed against my back, and I clung to the rock until I felt that the blood rushed from beneath my nails. I had just time to call out to Captain Jensen to cling to the rock, when the icy water closed over my head. When it had passed Jensen was

still at my side. The next few waves were several feet smaller, and only washed about us up to our armpits, but the drag of the water when it returned from the cliff tried us almost beyond our strength. Had it not been for a projecting ice-slope, which seemed to break the wave in its advance, we should undoubtedly have been smashed against the rock; for where the wave, unchecked, hit the wall some 10 yards beyond us it tore away stones and left a mark of moisture some 20 feet above our heads, while marks of spray were to be seen still further up."

A narrow escape indeed! But all's well that ends well, and the expedition was safely back in England the same year.

Meanwhile Professor Georg Neumayer, director of the famous Hamburg observatory, in Germany, and Sir Clements R. Markham, President of the Royal Geographical Society, in England, had been emphatically urging the importance, both from a scientific and national point of view, of sending out expeditions to work simultaneously and in concert as far as possible, to give their observations taken in different parts of the antarctic coast a greater value. The German Government voted £60,000 for an expedition to be entrusted to Dr. Eric von Drygalski, who had already done excellent work on the inland ice of Greenland. In England the Royal Geographical Society appealed for subscriptions; and one of their Fellows, Mr. Longstaff, came forward with the generous offer of £25,000, which was made up by the R.G.S. and the Royal Society, together with private subscriptions, to £45,000. On June 22nd, 1899, a very

influential deputation of scientific men waited upon the Right Hon. A. J. Balfour, First Lord of the Treasury, and in a series of speeches pointed out that now was a fine opportunity for Her Majesty's Government to come to the aid of a scheme which, to those who could read things aright, was of national consequence. "As Britannia rules the waves," said the aged Lord Kelvin, "it is of primary importance for England to take part in the exploration of her own realm." And no doubt pride in the past of Britain's navy brought it about that in due course Parliament voted £45,000.

Thus provided with the sinews of war, the promoters of the enterprise took active steps for the preparation of fit vessels to carry the exploring party, which consisted of a crew of forty men, almost all sailors of the Royal Navy, under the command of Commander R. F. Scott, aided by Lieutenants Armitage, Shackleton, Royds, and Barne, Mr. Skelton, Dr. Koettlitz, Mr. Louis Bernacchi, Dr. Wilson, Mr. Hodgson, and Mr. Ferrar.

The *Discovery*, their future home, was built of oak, her sides being 2 ft. 6 in. thick, and sheathed at the bows with steel. She measured 172 ft. by 33 ft., and displaced about 1,570 tons. The engines were placed aft, so as to admit of a magnetic observatory being built before the mainmast, which had no iron within 30 feet. All possible arrangements were made that could conduce to the health and comfort of the crew. Generous people provided the ship with provisions, musical instruments, and a library of several hundred books; so that when, on August 6th, 1901, the *Discovery* sailed from Cowes—

five days before the German *Kauss* left Kiel—she was excellently equipped for a battle with the cold and gloom of a polar winter. In order that the expedition might spend two or three seasons in the Far South, arrangements were made for sending relief ships with stores at the period when the ice breaks up, the *Discovery* herself going into winter quarters off the Great Barrier.

On December 24th, 1901, Commander Scott headed his vessel out of Port Chalmers, New Zealand, for Victoria Land. His instructions were "to study the nature of Ross's great ice barrier; if possible, to discover land to the eastward; to secure various scientific results during the voyage and in winter quarters; and from winter quarters to explore the volcanic region, and to make discoveries to the south and inland to the west."

By January 9th, 1902, Cape Adare was reached. The ship passed southwards along the shore of Victoria Land, and put into Lady Newnes Bay to kill and skin seals for winter consumption. The explorers found blubber abominable, but the seal-meat itself fairly good, though by no means the equal of beef or mutton. From a point near Mount Terror they had their first view of the ice barrier stretching away to the horizon on the south. They then rounded Cape Crozier of the island on which stand Mounts Erebus and Terror, and turning due east proceeded to feel their way along the barrier, which at first rose but 30 feet to 300 feet, though in the more easterly stretches 900 feet was often measured. In passing, it should be mentioned that Erebus, 12,365 feet, and Terror, 10,884 feet. earn by their height an honourable place

among the volcanoes of the world. On two occasions, at least, smoke was seen proceeding from the crater of Erebus, which, like Hecla, is a testimony to the terrific heat underlying the adjacent fields of ice.

After proceeding some 700 miles eastwards, a landing was made, and a captive balloon, carried for the purpose of observation, inflated. Captain Scott ascended in it 750 feet, and obtained a view of many parallel lines of undulating ice extending to the horizon. Three hundred miles more covered, the commander decided to turn back to the winter quarters already located south of the volcanoes; but not before discovering more land, which he named after our present King.

They now prepared for the long winter night, which is 186 days long in the antarctic, as compared with 179 in the arctic regions. Its cold is intense, precluding the growth of the vegetation which in equal latitudes is found in Arctica. Even below deck lumps of ice formed on the head of any bolt that terminated on the outside of the ship.

"As soon as the ice formed round the vessel, we stuck poles into it and stretched lines of rope from pole to pole leading to the shore, where we built a hut in case of anything happening to the ship, and then put a meteorological screen, in which were kept the barometers, thermometers, and other recording instruments, a hundred yards astern of the ship, also stretching lines to this. Without this precaution it would have been impossible for us to have travelled even the short distance necessary to reach either of these spots, because during the winter, and

indeed at all times, blizzards would spring up suddenly, and one could not see a foot ahead." (Lieutenant E. H. Shackleton in *Pearson's Magazine.*)

After days of glorious twilight, shot by many-hued rays of the dying sun, the luminary went down altogether. In spite of the cold and darkness the crew kept merry enough. There was plenty of work to be done in repairing and preparing outfits, skinning and stuffing birds and seals, sorting things for the museum, fishing for marine creatures, collecting geological specimens, and, most important of all, taking scientific observations every two hours. The last duty proved one of the most trying, as it necessitated a short outdoor journey in all weathers. When a blizzard raged the cold seemed increased tenfold, and during even the few minutes taken by the struggle from the ship to the screen many a face or hand was frost-bitten.

In the evening cards, music, impromptu plays and books passed the time pleasantly enough. Good fellowship reigned on the *Discovery* as on the *Fram.* To take the place of journals from the outside world the crew issued the *South Polar Times*, beautifully illustrated by Dr. Wilson, the artist of the expedition. It contained matter light and serious; and even if not the equal of the London "illustrateds," has a niche all to itself in the history of journalism.

Sledge journeys formed a large part of the expedition's work. Lieutenant Armitage started westwards over the glaciers in the coast mountains and ascended to an elevation of 9,000 feet. His party were away fifty-three

days, and managed to reach a point 150 miles west of the ship. Some months earlier Lieutenants Royds and Barne, Mr. Skelton, Dr. Koettlitz, and eight men started for Mount Terror. On their homeward way they were separated by a snowstorm, and Mr. Barne's companions lost their bearings. Stumbling along in the driving snow one of them slid over an ice cliff 150 to 200 feet high and was killed. Barne himself and two of his men had a very narrow escape from a similar fate, being brought up a few yards from the edge of an ice slope by a patch of soft snow. But for this kindly foothold they would have been hurled into the sea, far below. Dazed and half frozen, they managed in some way unknown to themselves to reach the top of the slide again. The death of poor Vince was the only fatal accident of the year; and its occurrence cast a temporary gloom over the ship.

The most entertaining creatures met with by the explorers were the penguins, which, so far from showing fear, would often attack an intruder. Penguin "rookeries" on the rocks afforded considerable amusement. The old birds incubate the eggs with the aid of a feather flap, which is folded round the egg so as to keep it from touching the cold ground. It is indeed marvellous that in such a climate sufficient heat can be maintained for hatching purposes. The young birds are black. Their parents fill their own crops with shrimps, and then allow their nestlings to thrust a beak down their throats into the crop. The skua-gull is the one enemy the penguins have—a fierce bird that does not fear to attack man himself. For

mutual protection the penguins live in small colonies, the old ones repelling the skua with their sharp beaks.

Seals were as tame as the penguins, not attempting to move until, if meat were short, a hard blow on the nose stunned them. The sea-leopard, on the other hand, sometimes proved an ugly customer, which required a rifle-shot or two to quiet. Of polar bears no mention is made.

On November 2nd the sledge journey, which by establishing a record of S. latitude attained by man has attracted so much attention, was begun. The party consisted of the Commander, Mr. Wilson, and Lieutenant Shackleton, who took with them nineteen dogs to haul 100 lbs. apiece. Lieutenant Barne was sent ahead to make a depôt of stores for use on the return journey. In order to reduce the weight of things carried to a minimum the three denied themselves even the luxury of a pipe and tobacco, and went smokeless for the ninety-four days of their journey.

Their bold dash across the great icefields is the counterpart of that made in the North by Nansen and his companion. At first things went bravely enough. But soon the hard work of travelling even fifteen miles a day told on the dogs, which began to sicken and die off one by one, leaving the men to take their places at the sledge ropes. It became necessary to lighten the freight, by forming a second depôt; and to push southward with the few dogs that survived and three weeks' provisions at the rate of 2 lbs. per man per day. This amount had to be curtailed owing to the continued mortality among the dogs on

account of improper food, and the prospect of a more difficult return as a consequence.

The trials of such travelling are severe. First, there is the always-present sense of not having had a good meal; secondly, the inability to wash for weeks together; thirdly, the difficulty of getting into or out of frozen furs, sleeping-bags, socks, etc.; fourthly, the great weariness from trudging over the rough ice, and hauling at the sledge. To these may be added in this case snow-blindness, which attacked all three more or less severely, in spite of the coloured goggles worn. "Then," says Lieutenant Shackleton, "we had to have our eyes bandaged and be led to the sledge to pull, and at the end of the day's work led from the sledge into the tent where our single pannikin of food was prepared. When I was snow-blind I could never tell when I had finished my food, because by diligently scraping round I might come across a morsel. Then one of my companions having good eyesight would manage to scrape up perhaps another spoonful."

Lunch soon became a very simple affair, a few lumps of sugar, a biscuit and a half, and a little bit of seal's meat, eaten as they marched along. When a blizzard came on there was but one thing to do—to put up the tent and cower in it till the storm had passed.

Christmas Day, 1902, distinguished itself by its warmth, which enabled them to make an unusually good march. The day did not pass without appropriate feasting—on a very small scale, as the plum-pudding weighed but six ounces. But a new and terrible enemy had put in its appearance—scurvy; and they had, much against their

will, to decide on a right-about-face after a few more days of southward march. On the New Year's Eve they broke the record by 200 miles, reaching 82° 17′ S., at a point on the edge of the ice, separated from the rock of the solid land by "an immense chasm, a mile in width, and about another mile from the cliffs." This effectually barred the passage; and the next day saw them set their faces northwards once more.

The retreat was marked by the physical breakdown of Lieutenant Shackleton, who, in spite of asthmatic trouble, pushed pluckily on ahead while his companions dragged the sledges behind. All the dogs but two had now perished, and the survivors were only skin and bone. So Commander Scott and Dr. Wilson had to pull 260 pounds each, a heavy burden for men reduced by want of good food to poor condition. However, on February 3rd they reached the *Discovery* again safely, to find that the relief ship *Morning* had arrived with stores and—more welcome still—news from the outer world. Lieutenant Shackleton, on account of his poor health, was invalided home. As a recognition of his great feat of leading a party so far south—490 miles from his base—Commander Scott won the Patrons' Medal of the Royal Geographical Society.

Owing to exceptional cold, the *Discovery* was unable to leave her winter quarters in 1903, and the *Morning* only just managed to clear the ice in time to escape imprisonment. Had not her captain, Colbeck, by clever seamanship worked his vessel out of the floes a great calamity would have overtaken the expedition—many

more mouths to feed, and no ship to carry home news or bring further relief.

During 1903 Scott and a gallant little band crossed the interior of Victoria Land to a point 270 miles west of the ship, and after encountering great dangers and several hairbreadth escapes, they made a most interesting discovery of fossil plants in a glacier. Meanwhile Lieutenant Royds explored the ice-barrier in a south-easterly direction for 160 miles; and Lieutenant Barne followed the land edge an equal distance due south. Altogether much important work had been done before the *Morning* once again hove in sight on January 5th, 1904. Strenuous efforts were now made to free the *Discovery* by the help of gunpowder; and on February 19th she was free. On April 1st a telegram from Lyttleton, New Zealand, told the Royal Geographical Society that the expedition had returned to that port safe and sound after two and a half years in the antarctic region. By the time that these words are in print brave Commander Scott and his crew will be in England to tell their enthralling story in all its details.

CHAPTER XXI

THE ROMANCE OF A GREAT RIVER

THE great rivers of a country have played a very important part in its history. It is hard to conceive of Egypt without its Nile; England without its Thames; India without the Ganges and Indus; the United States without the Mississippi. What the Hoang Ho, Yang-tze-kiang, and Canton Rivers have done for China, the Amazon for Brazil, the Volga for Russia, the Danube for Austria, the Elbe for Germany, the Seine for France, is incalculable. There is no need to extend the list, for we all know that before the advent of the railroad the commercial development of any people was largely bound up with its waterways; and even now the iron-horse finds in the navigable river a valuable ally.

Yet there is one great river to which mankind is indebted for nothing; a river that has been a bar rather than an aid to the advance of civilisation.

This is the famous Colorado—the Coloured River—which rises in the mountains of Wyoming, and after a turbulent course of 2,000 miles precipitates itself into the Gulf of California. It may be said for the Colorado that, if it has not proved useful, it is ornamental—

magnificent were the proper word to apply to its scenery. The cañons of the Colorado are unique. To see them people come from all parts of the world; and not a single visitor turns away disappointed.

For the better understanding of this chapter let us open our atlas and briefly note the main features of the flow of this extraordinary river and its tributaries. Its ultimate source may be put down at a point about fifty miles south of the Yellowstone National Park, whence it runs some 600 miles in a southerly direction, under the name of the Green River, to its junction with the Grand River, entering on the left bank. This tributary placed out of the reckoning, it is noticeable that only for a very few miles does the Colorado traverse the state of the same name.

From the junction downwards, for over 1,200 miles, the Colorado rushes through the deep cañons which it has cut out in the high tablelands of Utah and Arizona; maintaining a south-westerly direction to its confluence with the Virgin River, where the stream turns abruptly south for the remainder of its course, which is, towards the embouchure, through alluvial country.

There are twenty-five cañons. The names of the principal ones, reckoned from the source end, are Lodore, Whirlpool, Desolation, Labyrinth, Cataract, Glen, Marble, and Grand—significant titles. Of these the last two are pre-eminent for their scenery, their depth, and their length. The walls of the Grand Cañon, 217½ miles long, have an *average* height of 4,000 feet, and a *maximum* height of over a mile! Its width varies at the

A terrific gorge in the Lower Kanab Cañon of the Colorado. Its width is but 75 feet, its depth 2,500 to 3000 feet, or more than half a mile; and its existence is entirely due to the action of water.

brink from 4½ to 12 miles; but its inner gorge is much narrower, contracting in places to three-quarters of a mile. Through this gorge the water runs at high water with a velocity exceeding 20 miles an hour. To give the reader some idea of the formation and appearance of the cañons, the author has been kindly permitted to make quotations from Mr. Frederick S. Dellenbaugh's beautifully illustrated book on the Colorado River.

"The Grand Cañon may be likened to an inverted mountain range. Imagine a great mountain chain cast upside-down in plaster. Then all the former ridges and spurs of the range become tributary cañons and gulches running back twenty or thirty miles into the surrounding country, growing shallower and shallower as the distance increases from the central core, just as the great spurs and ridges of a mountain range, descending, melt finally into the plain. Often there are parts where the central gorge is narrow and precipitous, just as a mountain range frequently possesses mighty precipices. But it is an error to think of great cañons as mere slits in the ground, dark and gloomy, like a deep well from whose depths stars may be sighted at midday. Minor cañons sometimes approach this character; as, for example, the cañon of the Upper Virgin, called Parunuweap, fifteen hundred feet deep and no more than twenty to thirty feet wide, with vertical walls; but I have never been in a cañon from which stars were visible in daylight, nor have I known anyone who had. The light is about the same as that at the bottom of a narrow street flanked by very high buildings. The walls may sometimes be gloomy from their colour, or

may seem so from the circumstances under which one views them; but aside from the fact that any deep, shut-in valley or cañon may become oppressive, there is nothing specially gloomy about a deep cañon. The sun usually falls more or less in every cañon, no matter how narrow or deep. . . . At the bottom of the Kanab, where it joins the Grand, the sunlight in November remains in the bottom just two hours, but outside in the Gorge the time is very much longer.

"The walls of a great cañon, and usually a small one, are terraced; seldom are they wholly vertical for their entire height, though occasionally they may approach this condition on one side or the other, and more rarely on both sides at once, depending on the geological formation of the locality. Owing to the immense height of the walls of such cañons as those on the Colorado, the cliffs frequently appear perpendicular, when they are far from it, just as a mountain peak often seems to tower over one's head, when in reality it may be a considerable distance off. In the nature of the formation and development of cañons, they could not long retain continuous vertical walls. . . . The erosive and corrosive power of water being the chief land sculptors, it is evident that there will be a continual wearing away of the faces of the bounding cliffs. The softer beds will be cut away faster than the harder, and where these underlie the harder the latter will be undermined and fall. Every cañon is always widening at its top and sides, through the action of rain, frost and wind, as well as deepening through the action of its flowing stream. *Erosion* is this

power which carves away the cliffs, and *corrasion* the one which saws at the bottom, the latter term meaning the cutting power of running water. This cutting power varies according to the declivity and the amount of sediment carried in suspension. It is plain that a stream of great declivity will be able to carry more sediment than one having little, and in a barren country would always be highly charged with sand, which would cut and scour the bed of the channel like a grindstone. . . . The powers of erosion are far slower than those of corrasion, especially in an arid region, because they are intermittent. Where rocks take a polish, as in Marble Cañon, the scouring and polishing work of corrasion is seen in the shining bright surface as far as the water rises."

The cañons of Colorado exist because in that particular part of the world's surface the requisite conditions are found in conjunction. In the mountainous regions of Wyoming and Colorado an abundant fall of rain and snow takes place year after year. The water must drain off somehow, and owing to the great height of the mountains it was able originally to cross the elevated tablelands of Utah and Arizona, though these rise to a height of 7,000 to 8,000 feet above sea-level. Now, if these tablelands had been as well watered as the mountains, they would have precipitated their contributions into the channels scooped out by the mountain streams, and by breaking up the slopes into innumerable gullies, would have caused their rapid disintegration; with the usual result of forming a valley constantly widening as it deepened. But it so happened that the

mesas, or tablelands, are practically waterless; and they have remained almost passive spectators of the action of the mountain-fed streams. Should great climatic changes take place, and the rainfall of these arid heights become heavy, then the cañons would rapidly — in a geological sense—widen out into valleys.

So much for the physical features of the Colorado. Let us now turn to the story of its discovery and exploration by Europeans.

In 1539, after his conquest of Mexico, the Spaniard, Hernando Cortes, sent an expedition under Franciso de Ulloa to explore the Gulf of California, then named, in honour of the conqueror, the Sea of Cortes. Ulloa sailed up the gulf to within so short a distance of the Colorado's mouth that he experienced the effects of the "boil" caused by the meeting of the salt and fresh waters. Then his courage or his curiosity failed him, and he turned back.

Hard on his heels came Hernando de Alarçon, who, securing the goodwill of the natives by representing himself as a visitant from the sun, managed to penetrate about 230 miles up the stream. Meanwhile two other Spaniards, leaving a land force that was meant to co-operate with Alarçon, also reached the river; Lopez de Cardenas, probably, from his description, actually attaining to the Grand Cañon.

From the beginning of the seventeenth to the end of the eighteenth centuries is the period of the journeys of the Spanish *padres* among the Indian inhabitants of the Colorado valley. Ouate, Kino, Garces, and

Escalanto worked very hard to make converts to Christianity, and in doing so explored considerable portions of the cañons. The massacre of Garces closed their missionary endeavours; and when, after the lapse of another half-century, the white man again pressed across to the cañons, he came as a trapper, eagerly seeking the precious beaver-skin, and ready to repel with bloodshed the hostility of the natives. These men, of whom Kit Carson was the best known, removed Arizona and Utah from among the unexplored parts of the West.

They were in turn succeeded by men whose chief object was scientific investigation, some coming by land, and some by water. Lieutenant Ives, in 1857, ascended the river to the mouth of the Black Cañon; and in 1858 penetrated the cañon to its head. In 1867 a man, named White, was found below the Grand Cañon, in an exhausted condition, which he ascribed to a terrible journey through the Grand and the preceding cañons on a raft. He told how, while prospecting on the Grand River, he and two companions were attacked by Indians, and one of their number killed. The two survivors retreated into a cañon, where they found enough driftwood to make a raft of; and under cover of night entrusted themselves to the seething waters. They passed through terrible gorges and whirlpools, in one of which White lost his comrade. At last he reached the mouth of the Little Colorado, to find a terrific eddy, where he too almost perished. Fortunately, however, the raft was not sucked into the vortex, and he floated into the smoother waters of the Grand Cañon, out of which he was taken by a pioneer

named Hardy. His sufferings procured him abundant sympathy, and a good deal of cash for his homeward journey; yet of his story it must be confessed that it was magnificent, but not the truth. When someone *had* been through the cañons his statements fell to pieces. To take but two instances: the terrible whirlpool at the confluence of the Great and Little Colorado is non-existent, while the "smooth waters" of the Grand Cañon are in reality a raging torrent, full of rapids!

We now at last come to the true Hero of the Colorado, Major John Wesley Powell, who had fought in the Civil Wars, and in them lost his right forearm.

During the course of several expeditions along the river heights in 1867, Major Powell conceived the idea of exploring the gorges by boat. To quote Mr. Dellenbaugh once again: "He decided that the starting-point must be where the Union Pacific Railway had just been thrown across Green River, and that the only chance for success was to continue on the torrential flood till either he should arrive at the end of the great cañons near the mouth of the Rio Virgin, or should himself be vanquished in the endeavour. It was to be a duel to the finish between the mysterious torrent on the one side and a little group of valiant men on the other. Never had plumed knight of old a more dreadful antagonist. . . . No ordinary man was equal to this difficult task, which demanded not alone courage of the highest order, but combined with this courage a master mind and the strategic skill of a general."

Like a good general Major Powell left nothing to

A Pai Ute Indian boy, a native of S.W. Nevada, on the flank of which country the Colorado flows.

chance. For such a journey ordinary boats would not suffice. He accordingly went to Chicago and had four strong skiffs built after his own designs. Three were twenty-one feet long, and of oak; the fourth of pine, and sixteen feet over all. Each had a watertight compartment fore and aft to buoy her up in case of a capsize; the centre being open for the accommodation of supplies, which included a long rope for lowering through rapids.

The boats were taken by rail to Green River, Wyoming, and there launched. On May 24th, 1869, the small party of ten men set out on their perilous trip, the actual dangers of which could be ascertained by experiment only. Two records were kept of the journey, one by the chief, and the other by John C. Sumner, who was in Powell's boat. Nothing noteworthy occurred until the voyagers reached Lodore Cañon, where the *No Name* got into trouble, being swept down the rapids, and broken on the rocks. Its occupants were luckily able to cling to rocks and boulders, until rescued by their companions.

This disaster, coming so early in the voyage, was discouraging; but nobody thought of turning back. Without further mishap, they cleared Lodore Cañon and entered the whirlpool, through which they passed very rapidly, and on into the Split Mountain. In Desolation Cañon Powell's boat was upset, and the fate of the expedition trembled in the balance. The crew managed, however, to keep hold of the boat and bring it to the bank. The next day a man was knocked overboard and dragged along head downwards through a rapid, his foot caught under a seat, but was hauled inboard again unhurt. Labyrinth

Cañon—very tortuous—negotiated, they reached the confluence of the Colorado with the Grand River, the first white men, probably, to see it from the water-level.

Here some expeditions were made into the surrounding country, and an inventory taken of the stock of provisions, which had been sadly diminished by the loss of one boat. The party was threatened with a famine unless they progressed faster in the future. They therefore cast off again into the rapids of Cataract Cañon, making numerous portages at dangerous spots. Once more Major Powell's boat capsized; and once more the crew escaped with their lives. Before this terrible gorge was left behind many anxious moments tried the courage and patience of all.

Meanwhile a report that the adventurers had perished in a whirlpool, had been spread by a man who represented himself as the sole survivor, in order to get sympathy and dollars. He succeeded in this, but could not dismay Mrs. Powell, who knew for a fact that the expedition had passed the reputed point of their doom.

For 149 miles the boats floated smoothly through Glen Cañon, and bore the ten men into the throat of the gorge named, from the polished surface of its sides, the Marble Cañon. At the entrance the wall rose a few hundred feet only; but after three days of difficult travelling their height had increased to nearly two-thirds of a mile.

Soon the Little Colorado was seen, a small, muddy stream, entering through a side cañon on the left. A month's rations now remained—and the Grand Cañon.

"We have," writes Major Powell in his diary, "an unknown distance yet to run; an unknown river yet to explore. What falls there are we know not, what rocks beset the channel we know not, what walls rise over the river we know not. The men talk as cheerfully as ever; jests are bandied about freely this morning, but to me the cheer is sombre and the jests are ghastly."

The mile-high cliffs on either side added to their anxiety, making them feel so far from the outside world above. Yet no serious difficulty was met until they reached the First Granite Gorge, where the rough sides caused the water to be very troubled. "The same day on which they entered the granite"—this is Mr. Dellenbaugh's account—"they arrived, after running and portaging around several bad rapids, at a terrific fall, announced by a loud roar like the steady boom of Niagara, reverberating back and forth from wall to wall, and filling the whole gorge with its ominous note. The river was beaten to a solid sheet of reeling foam for a third of a mile. There was but one choice, but one path for the boats, and that lay through the midst of it, for on each side the waves pounded violently against the jagged cliffs which so closely hemmed them in. Men might climb up to the top of the granite and find their way around the obstruction, one thousand feet above it, descending again a mile or two down, but they could not take the boats over such a road. So they got into their boats and started on the smooth waters, so soon shattered into raging billows. Though filled with water, the boats

all rode successfully and came out below crowned with success."

For the third time a boat was overturned in a rapid, though as usual without any fatal result. What caused almost as much anxiety as the passage of the cataracts was the rapidly diminishing supply of food. At last three of the party, weary of the eternal cañons, portages, and scanty rations, refused to proceed further down the stream, and determined to make for civilised regions across the almost unknown plateaux. They accordingly said good-bye to their seven companions, climbed the cliffs a mile skywards, and disappeared from view. On the plateau they crossed the trail of a band of Shewit Indians, who, in revenge for outrages committed by some miners of the neighbourhood, fell upon the three men from an ambush and massacred them.

It would have been well for them had they stuck to the colours, for the dangers of the voyage were nearly over. After shooting one more dangerous fall Powell and his party emerged from the Grand Cañon victorious, the first men who had ever come alive through the gorges of the Colorado. They might indeed be proud of their feat, achieved as the result of constant watchfulness, courage, and patience, and, it may be added, privation, since but ten pounds of flour and fifteen of dried apples remained to the explorers when they met white men again. It certainly stands out as a unique journey in the records of exploration; for though on many occasions men have ventured into the unknown terrors of desert or mountain, no one yet had deliberately

A 1,500-foot pinnacle in the Cañon de Chelly, Colorado. Being of hard material, it has survived the erosion which has bitten away the earth that once surrounded it.

faced the perils of a thousand miles of whirling water amid which a single sunken rock might easily spell annihilation.

Most men would have been satisfied with one such journey. To Major Powell's mind the scientific observation left much to be desired; and he accordingly prepared for another descent, financially aided by the Government. Mr. F. S. Dellenbaugh himself took part in the second journey, of which he has given a most interesting account in the book already referred to.

On this occasion three boats were used, rather larger than their predecessors. Eleven men manned them. The expedition left Green River Station on May 22nd, 1871, and terminated in the Grand Cañon early in September, 1872. The intermediate winter was spent surveying in Glen Canyon and the neighbourhood. During August, 1872, the party, reduced by illness to seven persons, had some exciting experiences in the Grand Cañon, where the rapids seem to have been even more violent than in 1869.

Eighteen years later a railway surveying party descended the river from the Grand River Junction to the sea. But up to date nobody has made the complete trip from the Green River Station to the salt water of the Californian Gulf.

CHAPTER XXII

THROUGH CANADIAN FORESTS AND MOUNTAINS

NO land in the globe affords a more appropriate setting for stories of adventure and exploration, whether found in fiction or drawn from real experience, than the great Wild West of North America. Not the degenerate West of the present day, vulgarised by cattle ranches and mining camps, but the free, boundless expanse of virgin forest and prairie, the home of the whooping, scalping Red Indian, the grizzly bear, and the buffalo in its innumerable herds. It is positively refreshing, after a long course of literary journeys through arid deserts and frozen mountains, to take up a breezy narrative of irresponsible adventure in a land beloved of one's youth, through which we followed, with enthralled interest, the trail of "Hawkeye," of Charley Ashley, or of Ballantyne's youthful heroes.

When Dr. Cheadle and Viscount Milton, the authors of *The North-West Passage by Land*, sailed from Liverpool in the summer of 1863, their object, it would appear, was not exploration, but sport and adventure in the plains and forests of Saskatchewan and Athabasca, to be followed by a trip through the Rocky Mountains to the Pacific coast. However, whether agreeably to their ambition or not, they

found themselves involved, in the course of their travels, in a tremendous episode of pioneering, worthy to take its place among the great achievements of deliberate explorers.

The title of their book is somewhat misleading, for their route lay not through the North-West Territory as we know it, but across the southern states of what is now the Canadian Dominion, comparatively near to the boundary line of the United States. In those days the West was yet in its full glory of wildness. British Columbia was but vaguely known, and all the vast territory between Lake Superior and the Rockies, as far north as the Arctic Circle, was monopolised as its hunting-ground by the Hudson's Bay Company and remained sheer primitive wilderness, broken only by a small settlement on the Red River and the Company's widely scattered forts or trading stations.

Entering the country from the States, by way of the Red River, just in advance of an old-fashioned Indian rising, which exterminated the white inhabitants of the district south of the border, the party reached Fort Garry, a site now occupied by the thriving city of Winnipeg. Their outfit for the plains was here got together. It followed fairly closely the traditional order. French half-breeds were engaged, horses bought, and "pemmican" and other supplies packed in rough carts of the country, but it gives somewhat of a shock to read that instead of the once indispensable "pea rifle" their weapons consisted of double-barrelled smooth-bores and revolvers.

The season was getting late, so they decided to move westward, join in the great "fall" buffalo hunt, spend the winter trapping in the forests, and cross the mountains in

the spring. Through delightful park-like country they travelled to Fort Carlton on the North Saskatchewan river, shooting feathered game, which was abundant everywhere, and encamping by water every night. A few marches farther on they came upon buffalo, and the "running" began.

This form of sport has been frequently described. It is intensely exciting, but, unless the hunters are true sportsmen, and possessed of unusual self-restraint, is bound to degenerate into butchery, to the ultimate benefit of the wolves alone. The excitement of the chase, rather than greed for the pelts, is responsible for the running of, practically speaking, the last wild buffalo off the face of the American continent. Our friends were moderate enough, but one of their companions, a new hand at the game, could not break off before he had utterly lost himself. Next morning he was brought back, like a naughty boy, by a party of Cree Indians, who, having been suitably entertained, were sent away apparently satisfied.

It was not so, however, for they had scented rum, without getting any. Now rum is the one crying need of the Indians and half-breeds of the plains. They are not dram-drinkers, for the taste of "firewater" does not appeal to their palates. What they appreciate is its solid intoxicating property. "I do not drink often," said La Ronde, the chief guide, a sober man enough on the march, "but when I do, I drink properly." The Hudson's Bay Company, to their everlasting credit, consistently refused to trade spirits with the natives, but travellers were often less conscientious. The disappointed Crees followed the party to steal their horses, but being

suspected of the design, were thrown off the track by a clever frontier ruse.

Winter quarters took the form of the usual backwoodsman's hut, of rough poplar logs laid horizontally, with the interstices packed with mud. It boasted a wooden floor and a parchment window, also a stone fireplace and chimney, and altogether kept them warm and fairly comfortable. The stately edifice was named, in the parlance of the country, "Fort Milton," in honour of its architect, and served the two sportsmen as a home from the end of October until the beginning of April. This period was devoted ostensibly to the trapping of fur-bearing animals, but in fact more generally to the task of keeping themselves and their dependants supplied with food.

This trapping is no pastime. The trapper, loaded with a heavy pack, has to make long rounds, each entailing several night-camps in the bitter cold. The "dead-fall" is the form of trap usually employed, having the advantage that it can be made on the spot, whereas the spring-trap, necessarily a weighty one, must be carried long distances. The dead-fall consists of a small enclosure formed of stakes driven into the ground, into which the animal can only insert two-thirds of its body through an entrance at one end. Across and above the entrance is poised a tree-trunk, kept in position by a stick, to the further end of which the bait is fixed. When the bait is seized, the tree is liberated, and crushes the animal to death. Dr. Cheadle in particular became very expert at this work. The animals most commonly taken were the marten, the mink and the fisher, all of the weasel tribe, but the most valuable skins were those of the silver and cross foxes.

La Ronde, a trapper of great experience, had some very queer stories to tell about that *bête-noire* of his profession, the wolverine, whose almost diabolical cunning qualifies him for his Indian sobriquet of Kekwaharkess, "The Evil One." The following example should be tall enough for any smoking-room. "In one instance, when every device to deceive his persecutor had been at once seen through, and utterly futile, he adopted the plan of placing the gun in a tree, with the muzzle pointing vertically downwards upon the bait. This was suspended from a branch, at such a height that the animal could not reach it without jumping. The gun was fastened high up in the tree, completely screened from view by the branches. Now, the wolverine is an animal troubled with exceeding curiosity. He investigates everything . . . and anything suspended almost out of reach generally offers an irresistible temptation. But in the case related by La Ronde the carcajou restrained his curiosity and hunger for the time, climbed the tree, cut the cords which bound the gun, which then tumbled harmlessly to the ground, and then, descending, secured the bait without danger." One must conclude, however, that the wolverine either is a very scarce animal, or that his reputation is decidely overcoloured, otherwise no trapper would ever secure a single pelt.

Winter on the plains is always a hard time, but this year it was a particularly cruel one for the Indians, for the wholesale slaughter going on had rendered the buffalo scarce, and that meant starvation. Many gaunt figures stalked up to Fort Milton, too proud to ask for food, too honest to steal when the chance offered, though nearly

dying of hunger. Happily the stores provided a meal for all, but had to be replenished several times from the distant stations of the company.

In April came the thaw, and a forward move could be made. The horses, turned loose in poor condition in the autumn, to shift for themselves through the winter, were tracked down some ten miles away, as fat as though stall-fed, thanks to the marvellous snow-hidden pasture. Returning to Fort Carlton the two travellers procured supplies, packed them this time on horses, and made a fresh start for the Rockies. At Fort Pitt they engaged their remarkable guide, a half-breed known as "the Assiniboine," combining the most seductive manners with the blackest reputation. Journeying through splendid fertile country, in these days, as the travellers could then predict, rapidly filling up with emigrants from Europe and the States, they reached Edmonton, where they picked up another travelling companion, assuredly the most extraordinary figure in all the history of exploration. This curiosity, in whom can be recognised the original of numerous characters in fictional adventure, is thus described: "Mr. O'B. was an Irishman of between forty and fifty years of age, of middle height and wiry make. His face was long and its features large, and a retreating mouth almost destitute of teeth, gave a greater prominence to his rather elongated nose. He was dressed in a long coat of alpaca, of ecclesiastical cut, and wore a black wide-awake, which ill accorded with the week's stubble on his chin, fustian trousers, and highlows tied with string. He carried an enormous stick, and altogether his appearance showed a curious mixture of the

clerical with the rustic. His speech was rich with the brogue of his native isle, and his discourse ornamented with numerous quotations from the ancient classics." He claimed, probably with truth, to be a graduate of Cambridge University, a schoolmaster by profession, driven by the cruel force of fate into these wilds in a preposterous quest of employment. As none was forthcoming, he was now on his way to British Columbia, and was good-naturedly allowed to attach himself to the party, despite the mutual prejudices existing between him and the Assiniboine, whom he only knew in the character of murderer.

Among the foot-hills of the Rockies the country became much more difficult, and as the pine-forest thickened game grew less, but grisly bears, to the great discomfort of Mr. O'B., more plentiful. The scholar was an utterly helpless piece of lumber, and desperately afraid of all animals, wild or domesticated, but almost paid his way by the amusement he afforded. To check his inveterate practice of lagging behind, the Assiniboine or his son would play grisly in a thicket, a device which always brought Mr. O'B. up in great style. After a narrow escape from a forest fire and other disagreeable experiences, the party reached Jasper House, an abandoned fort on the Athabasca River, at the mouth of the Yellow Head pass. Here dwelt a portion of the secluded tribe of Shushwap Indians, surely, if the reports of the pioneers who first discovered them can be trusted, the hardiest folk in the world. "The only clothing used by this singular people was a small robe of the skin of the mountain marmot. They wandered barefoot among the

A typical scene at the edge of the Canadian Rockies. White Man's Pass, Alberta.

sharp rocks, and amidst the snow and bitter frost of the fierce northern winter. When camping for the night they are in the habit of choosing the most open spot, instead of seeking the protection of the woods. In the middle of this they make only a small fire, and lie in the snow, with their feet towards it, like the spokes of a wheel, each individual alone, wrapped in a marmot robe, the wife apart from her husband, the child from its mother." Such was the people, whose members did not always succeed in safely accomplishing the journey which now lay before our travellers, to the Shushwap lake, the headquarters of the tribe.

The crossing of the Rockies did not call for much mountaineering. In fact, so gradual are the slopes that the "crest" of the Yellow Head pass was surmounted without being recognised for a ridge. The going was bad enough, however, consisting mainly, it would appear, in the crossing and recrossing of turbulent rivers. At the fords Mr. O'B. was always immense. Horribly frightened, he floundered through the water or clung frantically to his saddle when the depth rendered necessary the help of the terrible horse, upbraiding his companions incessantly, and wildly shouting very fairly appropriate Latin or Greek quotations. When for a change it left a torrent-bed, the path was merely a trapper's track through dense forest, or, what was much worse, over burnt areas where the trunks lay tangled on the ground. Beyond the pass, after they struck the Fraser River, their experiences were even more painful. Tree-trunks were larger and water deeper. Pack-horses were constantly getting swept away by the current, and one of them,

with his pack, was finally lost. The loss fell heavily on all, for the pack contained their whole stock of tea, salt, and tobacco; but the loudest wail arose from Mr. O'B., whose complete outfit, comprising tin kettle, spectacles, and letters of introduction, had been involved in the calamity. Nothing was left him but Paley's *Evidences*, ever cherished in his breast-pocket. But the poor pedagogue was always in trouble, airing his ridiculous woes.

From Tête Jaune Cache, on the Fraser, their objective was the mining camps on the Cariboo hills; but finding that this course meant cutting every foot of their way through virgin forest, the party turned aside in the expectation of finding a trail down the valley of the North Thompson River. It was this détour which, as has been said, involved them in the extreme difficulties of exploratory pioneering.

From Tête Jaune Cache to Kamloops is a distance of some three hundred miles, and the way, vaguely known to a few Indians, followed the banks of the river mentioned, which runs from north to south. An old squaw, who had made the journey in her girlhood, traced a rough map for them; but they mainly relied on the fact that a strong party of Canadians, bound for Cariboo, had started shortly before in that direction.

Following with difficulty the trail of the latter, they reached a point about half-way, where the Canadians had evidently slaughtered their cattle, unable to get any further, and had taken to the river. The position of the party thus became, as a matter of fact, desperate. An attempt to navigate a raft nearly had a fatal result, and

was fortunately abandoned as impossible. Not three days' rations, and but a few charges of powder, remained; and their clothes were in rags. The only way of escape appeared to lie in cutting a way forward through indefinite leagues of forest such as they shall describe for themselves. "No one who has not seen a primeval forest, where trees of gigantic size have grown and fallen undisturbed for ages, can form any idea of the collection of timber or the impenetrable character of such a region. There were pines and thujas of every size, the patriarch of 300 feet in height standing alone, or thickly clustering groups of young ones struggling for the vacant place of some prostrate giant. The fallen trees lay piled around, forming barriers often six or eight feet high on every side; trunks of huge cedars, moss-grown or decayed, lay half buried in the ground on which others as mighty had recently fallen; trees still green and living, recently blown down, blocking the view with the wall of earth held in their matted roots; living trunks, dead trunks, rotten trunks; dry, barkless trunks, and trunks moist and green with moss; bare trunks, and trunks with branches —prostrate, reclining, horizontal, propped up at different angles; timber of every size, in every stage of growth and decay, in every possible position, entangled in every possible combination."

Fill with this sort of tangle a narrow valley, its sides sloping at an angle of 45° to the water of a torrential river, and it may be possible to conceive how the party had to convey themselves and their worn-out horses. The party, too, was signally weak in its constituents.

Dr. Cheadle and the guide were of fine physique. Lord Milton seems to have been slight. The other members were the guide's wife and boy, and the unspeakable Mr. O'B. The Assiniboine led the way with the one small axe they possessed, and forward they pressed. With heart-breaking labour three to five miles' progress was made each day. An occasional wood-partridge or skunk eked out their vanishing stock of food. At last a horse had to be sacrificed. In the hope of obviating this step, the Assiniboine devoted a day to hunting. He returned with one miserable marten and news of the gruesome discovery of a dead man. The story of the headless Indian, which follows, met with much incredulity on its appearance; but nine years later, as will be seen, received signal and complete corroboration. Following the half-breed's directions, the authors found, at the foot of a large pine, "the corpse in a sitting posture, with the legs crossed and the arms clasped over the knees, bending forward over the ashes of a miserable fire of small sticks. The ghastly figure was headless, and the cervical vertebræ projected dry and bare; the skin, brown and shrivelled, stretched like parchment over the long framework, so that the ribs showed through distinctly prominent; the cavity of the chest and abdomen was filled with the exuvia of chrysales, and the arms and legs resembled those of a mummy. The clothes, consisting of woollen shirt and leggings, with a tattered blanket, still hung round the shrunken form. Near the body were a small axe, a fire-bag, large tin kettle, and two baskets made of birch bark. In the bag were flint, steel and

tinder, an old knife, and a single charge of shot carefully tied up in a piece of rag." No trace of the head could be found. The Indian was doubtless a Shushwap, bound, like themselves, for Kamloops. Fragments of the head-bones of a horse lay by him. The parallel was startlingly complete. Like them, reduced to the verge of starvation, he had eaten his horse. Leaving the grim remains untouched, they returned sadly to camp.

The sequel may be given at once. In June, 1872, nine years later, a survey party of the Canadian Pacific Railway reached the spot, and found the bones still there, scattered by the fall of the pine, and buried them. The mysteriously missing skull also was discovered fifty yards away. Again, some months later, Mr. Grant, author of *Ocean to Ocean*, following the same trail, saw the grave, and a companion carried off the skull, a photograph of which appears in his book.

So "Blackie," Mr. O'B.'s packhorse, met his fate, and in the strength of his meat the party marched forward. The valley narrowed to a gorge, where a precarious path was picked along the face of a precipice. At one point a horse went over a sheer cliff, and was miraculously saved by lodging astride a tree-trunk, from which dangerous perch he was actually rescued unhurt. Another horse was turned into food, but even the splendid Assiniboine lost all hope. At last an old trapper's trail was struck, which in a few more days led them out of this awful valley, through which they had been struggling for five weeks.

Nearer Kamloops they met with Indians, who produced

potatoes, ravenously eaten raw, and so, haggard and unkempt, their clothes in tatters and their mocassins in shreds, they tottered along to the settlement, and a land of plenty. Mr. O'B., such care had he taken of himself, arrived after the main body as fresh as a colt, flying swiftly before the dreaded fury of the Assiniboine, who was bringing up the horses.

And now, having brought them back to civilisation, we must prepare to take leave of our friends. They carried out their intention of visiting the mines of Cariboo, and after many adventures, which cannot here be recorded, worked their way to the Pacific and San Francisco, whence they returned by way of Panama to Liverpool.

A word must be added as to the fate of the Canadians who preceded them down the Thompson. They had taken to rafts at Slaughter Camp, as was surmised, and met with disaster at the gorge. The survivors landed and cut their way along the bank, but on the other side of the river, and eventually arrived at Kamloops in wretched plight.

Mr. Grant, who nine years later followed very closely the route taken by Cheadle and Milton all the way from Red River, is able to vouch, in *Ocean to Ocean*, for the accuracy of their narrative, including the vagaries of the valiant Mr. O'B.

Note.—This chapter is based upon *The North-West Passage by Land*, from which quotations have been made by the kind permission of the authors and of the publishers, Messrs. Cassell and Co., Ltd.

CHAPTER XXIII

AMONG SOUTH AMERICAN FORESTS

AMONG the rivers of South America the Orinoco is most bound up with English history, for its name is linked with that of Sir Walter Raleigh, one of England's noblest sons.

He looked to the Guianas as likely to prove for him what Mexico had proved for Cortes and Peru for Pizarro —a land of gold and other inexhaustible riches. Since the days of these Spanish conquerors the natives had poured into the eager ears of foreigners stories of the untold wealth of Guiana, the country that lay round the great Orinoco. Fables of the vast city of Manon and El Dorado passed from mouth to mouth. In comparison with Guiana, Peru was a poverty-stricken country, and no city in the world could hold a candle to Manon for its size, riches, and excellent situation for trade. Rumour said that to this city had been carried all such treasure as the natives of Mexico and Peru saved from the rapacious hands of the Spaniards, so that "the very boxes and troughs were made of gold and silver, and billets of gold lay about in heaps."

The Spanish invaders were not slow to test the truth of the reports about this rich Tom Tiddler's ground,

sending expedition after expedition, which cost the lives of thousands, but produced no important discoveries.

Then Sir Walter Raleigh came on the scene. He hoped to succeed where the Spaniards had failed. On February 6th, 1595, we find him leaving Plymouth with a squadron of five ships, bound for the Orinoco. A voyage of seven weeks brought him to Trinidad, which, as a Spanish stronghold, he at once attacked and made himself master of, thus securing a base for future operations. These consisted of the exploration of the river in five open boats laden with a hundred men and provisions for a month. After much hard work Raleigh and his party threaded the tortuous streams of the delta and "fell into as goodly a river as ever I beheld, called the great Amana, which ran more directly without windings or turnings than the other."

The English met with a hospitable reception by the natives wherever a story of their man-eating propensities had not travelled ahead on the wings of Spanish scandal-mongering. Raleigh was delighted with what he saw: "hills so raised here and there over the valleys, the river winding into divers branches, the plains all fair green grass, the deer crossing in every path, the birds towards evening singing on every tree with a thousand several tunes, the air fresh with a gentle easterly wind, and every stone that we stooped to take up promised either gold or silver by its complexion." He had seen enough for his imagination to far outstrip the truth, though, indeed, the country was rich in resources. Gold, gold, gold, was the cry! Of vegetable products and pastures that would feed thousands of cattle the adventurers recked little.

A young snowy egret. From the adult bird are obtained the so-called "osprey" feathers worn in ladies' hats, a few plumes only being taken from the back of each bird. Consequently the egret is rapidly diminishing in numbers.

Raleigh sailed home without gold, but full of enthusiasm for the deposits which he felt sure he could discover if only provided with the necessary means.

Twenty-two years later, after languishing in prison for fourteen years on the charge of conspiracy, his mind turned again to the shores of the Orinoco. He laid before King James I. his conviction that in Guiana there existed a rich gold-mine which would prove of the greatest help to His Majesty's somewhat exhausted treasury, and that it would be worth James's while to give him freedom to go and seek for it and pardon if he found it. The King, with ready cupidity, agreed to give Raleigh this chance, binding him on his honour to return if unsuccessful. Raleigh accordingly sold all he had to buy ships and equipments, and in April, 1617, set sail from the Thames with his little fleet of twelve vessels, the largest of which was his own *Destiny*.

Almost from the first luck seemed against the gallant admiral. Scarcely had he reached South American shores when fever struck him down and reduced him to a state of pitiable weakness. Many of his men were already dead; some vessels lost, others damaged. As soon as his health permitted, he made arrangements for the exploration of the Orinoco in search of the gold-mine. He himself remained off Trinidad with a few ships, despatching five under the command of Captain Keymis, with George Raleigh and Walter Raleigh the younger as his subordinates. On the way Keymis discovered the newly-built San Thomé, which a considerable number of Spaniards had made their headquarters. Not wishing to leave an enemy in the rear, Keymis at once attacked the town and

took it; though not without the loss of young Walter—a terrible blow to the enterprise. George Raleigh then proceeded upstream for 110 leagues, and was struck with the fertility of the country fringing the banks. But of gold he could find none. Disheartened by the failure, Keymis ordered a retreat to Trinidad, where Sir Walter gave him a stern welcome, upbraiding him with having shown great folly in his unprovoked attack on San Thomé. So deeply humiliated was Keymis that he shot himself. Mutiny broke out in the fleet. Ships deserted one by one. And when, on June 21st, 1618, Raleigh reached Plymouth, his ship was alone. *Evil Destiny* it might well have been named.

This want of success enraged James, and to please the Spanish King, with whom he wished to make an alliance, he condemned Raleigh to death. On October 29th, 1618, the gallant soldier, sailor, and explorer died by the executioner's axe, a victim to the political ends of an ungrateful king.

The history of Trinidad contains three great events, falling in almost the same year of their respective centuries. Columbus discovered the island in 1496; Raleigh sacked the chief town in 1595; and a British fleet finally captured the island in 1797. It is now a British colony, and the centre of trade with the Orinoco.

Three hundred years after Raleigh's vain search for gold, gold was found in large quantities quite close to the scene of his explorations. The Callao mine has now passed into history, but during its palmy days scrip-holders soon became millionaires. Men who had taken

shares—at first almost valueless—in exchange for food and other commodities awoke to find themselves among the rich people of the world. Now the vein has been worked out; and the wealth-seeker does not visit Guiana for its gold. Its riches lie rather in the magnificent *llanos* flanking the Orinoco's left bank, and the forests which stretch southward from it to the Sierra Pacaraima. The last include the valuable rubber tree, and the sweet-smelling tonca-bean tree. The botanist finds among them many strange plants, none more welcome than the orchid; the ornithologist may secure specimens of brightly coloured birds; the entomologist reaps a rich harvest of butterflies and beetles. The streams teem with fish.

It will be interesting to follow the steps of a traveller up one of the numerous branches of the Orinoco. We therefore introduce the reader to Mr. Eugène André, a gentleman who spent many months on the Caura, a tributary which flows northwards from the slopes of the Sierra Pacaraima into the main stream, joining it at a point some 400 miles from the Atlantic. Mr. André's business was to keep an eye very widely open for orchids; to collect birds, beasts, and flowers; and to report upon the quality and quantity of the rubber trees that grew on either side of the Caura.

It has been said that every new variety of orchid that comes into the hothouses of civilised countries has cost at least one human life. This may, at first sight, appear a somewhat startling statement. But if Mr. André's experiences are a fair sample of the trials and dangers that usually accompany orchid-hunting, we may easily believe its truth. The orchid, as every gardener knows, thrives

best in a damp, hot atmosphere, which is also peculiarly fitted for the multiplication of fever germs. Consequently to get into the heart of an orchid district the hunter has generally to run the risk of malarial disease, a foe by no means to be despised when his only companions are a few ignorant natives. Then, again, there is the savage jaguar, or tiger, or alligator to be reckoned with; and hunger and thirst are always waiting an opportunity to attack him who wanders from the beaten track.

Mr. André left Port of Spain, Trinidad, on November 29th, 1900, for a long trip to the head waters of the Caura. He had, a couple of years previously, ascended the stream to La Prision, a small town seventy odd miles from its junction with the Orinoco, and made a cut across country eastwards to Mount Turagua. We say *cut*, because, for a large part of the distance, a path had literally to be hewn through the tangled mass of trees and creepers. Mr. André pays the following tribute to his guides: "The masterly manner in which the cutting of this trail had been performed was really astonishing. In the thickness of the forest, where it was impossible to see fifty yards ahead, these men, without a compass or any other instruments, had succeeded in opening a road to the foot of the mountain, of which even a trained surveyor might have been proud. No deviation from an almost straight line marred the accuracy of their work." He also draws attention to the peculiar gait of the Indians, who, when walking, keep their toes slightly turned in, and plant one foot exactly in front of the other, after the manner of a cow. Their object is to save their feet from contact

with any roots or stumps concealed in the grass bordering the narrow track.

To return to the second, and more important, journey. Mr. André was accompanied by a Mr. Orleans Longacre, an American gentleman interested in the rubber trees of the Caura region; Mr. Jacobson, a photographer; Mr. Villegente, a taxidermist; two hunters; and three factotums. All but the first of these were to go with him to the furthest point of his explorations.

The voyage up the Orinoco impressed two at least of the travellers with the possibilities of the country through which they passed, and also caused them to shake their heads over the supineness of the people who could rest content to live in poverty when riches, in the shape of extensive forests and *llanos*, lay at their very doors. Cock-fighting is far more serious a business than trade in a land where the popular motto seems to be "Pleasure first, duty afterwards." Every village has its cock-pit, its cock-trainers, and, of course, cock-fights, at which all distinctions of rank are waived, and the *peon* becomes as good as a noble—or better, if he have a gamer bird to put into the ring. The extraordinary care taken over the training of a bird—its exercising, grooming, and feeding—would do credit to an English racing-stable. The best thing that can be said about the fights themselves is that the cocks are not allowed artificial steel spurs—though their natural weapons are filed to the sharpest possible point.

Two other forms of amusement indulged in by the Venezuelans are bull-fighting and revolutions—the latter,

perhaps, having the preference, as showing the greatest sport.

Arrived at La Prision, on the Caura, the party made the acquaintance of several species of ant, which had been attracted to their quarters by the sweet refuse of a primitive sugar factory. The hunting-ant makes things very lively for creatures other than human beings. "It is interesting," writes Mr. André, "to sit on some log close to the living stream of destruction, as it hurries along, and observe the doings of these hunting-ants. . . . No leaf is left unturned, no crevice unexplored, by these terrible hunters. For yards in advance of the invading army the ground is alive with crickets, moths, and lizards—in fact, with every creature whose home is the rotting leaves and damp earth of the forest. Few living things escape. Now and again the army throws out battalions from the sides, which hurry forwards and meet ahead, enclosing a number of victims, for whom there is no escape." An even more unpleasant fellow-lodger was the hornet, large colonies of which found the ceilings of a living-room much to their taste, and sharply resented any attempt to oust them. However much an entomologist may be entertained by creatures with wings and stings, the explorer, as a general rule, would prefer to dispense with the thousand forms of insect life that he meets on his journeys.

From La Prision a serious expedition was made up the Nichare, a tributary of the Caura, to investigate the rubber trees of that region. We may here just glance at the work of a *scrinquciro*, or rubber collector. He first pitches upon a spot where a number of trees grow close

enough together to minimise the labour of walking from one to another. Just before dawn, when the sap is in most vigorous motion, he goes forth with his tiny axe and a supply of tin cups, flat on one side to lie close up against the bark. He cuts a few gashes in a tree and hangs a cup below them to catch the juice as it trickles out; and when his "round" is finished he takes a few hours' rest, while his cups are gradually filling. At nine or ten o'clock he visits the trees, pouring the contents of the pannikins into larger vessels. Now comes the process of smoking the milk. For this he makes a fire of —by preference—palm seeds. When it has been fairly started he dips a broad piece of wood into the milk, and holds it in the smoke until the adhering sap has set; then he dips it again, and smokes it again; and so on till a mass of rubber has formed round the paddle. This is then cut in half, and the parts are hung in the sun to dry. The raw rubber is now ready for export. The results of the testing were not such as to promise a good return for any money sunk in the rubber business of the Nichare. Mr. Longacre therefore went back to the Orinoco; and the remainder prepared for a long journey up the main stream of the Caura.

On February 22nd fourteen men left La Prision in three dug-out canoes, the favourite craft for river traffic. The "dug-out" is generally made out of cedar or sassafras, and its size may range from the *bongo*, of several tons burden, to a light and easily upset canoe only a few feet long. The name is somewhat misleading, as the boat is not hollowed out quite after the fashion of the toys we have all used in our childhood; and an operation

requiring considerable skill has to be performed before the canoe is finished. A suitable tree is felled and a section of the trunk is cut out. This is hacked and hewed until the *vertical* outline of the boat has appeared. Looked at from above, the solid block would seem much too narrow for practical purposes. But the builder knows what he is about. He digs and hacks at the interior, driving a gimlet gauge through from the outside here and there to ensure the sides being of a certain thickness. When sufficient wood has been scooped out he lights a fire in the boat to heat the sides thoroughly and make them pliant, and while in that condition they are forced apart at the top by inserting diagonal cross-pieces of wood and hammering their one end until they are at right angles to the centre line of the boat. The bars are now reinforced by short planks, which act as seats and also keep the sides permanently separated. The expansion of the canoe has to be done quickly and yet carefully before the wood has cooled.

By the beginning of March Mr. André and his companions had reached Para, where the river suddenly falls 900 feet from the higher land beyond, in a series of cataracts. A portage was made here, and the canoes were hauled to the upper river after nearly three weeks of hard labour. Except for one or two small rapids the way now lay open to the head waters of the river. The big boat had, however, been so much worn at the bottom by the Para portage, that its condition caused some anxiety. At the Arichi Rapids the rocks tore a hole in the crazy craft, but with the aid of some nails, oakum, and pitch, she was made seaworthy again. Mount

A primitive sugar mill of the Caura Indians. The cane is squeezed between a pole used as a lever and the surface of a deep notch in a post, the juice trickling down into a rough wooden bowl.

Amćha soon came in sight, a precipitous mass rising like a giant fortress from the surrounding country, an object of superstitious awe to the ignorant natives. Like Mustaghata, Demavend, and "The Long White Mountain" of Manchuria, its inaccessibility made it a centre round which the imagination of the aboriginal might play. Its summit, so the story ran, held an unfathomable lake, the home of strange creatures. Guardian goblins and demons dwelt in the clefts of the crags, looking down mockingly on such mortals as should attempt to climb into the forbidden heights. It is curious how, all the world over, natural obstacles are attributed by the ignorant minds of the people, who have for generations been unable to overcome them, to some supernatural power.

Mr. André's party found that the mountain was much further from the river than it appeared to be. But when reached it afforded a grand spectacle. "I have seen," says the naturalist, "many lofty peaks in the Columbian Andes. The double crest of the Sierra Nevada, clothed in perpetual white, is an imposing sight; but none of these peaks can inspire that sense of awe I felt, standing a helpless and insignificant atom, at the foot of that mighty wall, beside which the most imposing monument erected by the arrogance of man would be but a toy." After two days of ineffectual search for a path to the summit the little band turned back to the river, thoroughly drenched by a terrific thunderstorm, which the Indians interpreted as a manifestation of the mountain demons' wrath.

However this may be, a terrible stroke of bad luck was in store for Mr. André and his companions. During the

passage of the Arichi Rapids the large boat got loose and was whirled down the foaming waters against a rock, split open, and emptied of all her contents.

"Then it was that I recognised the magnitude of the disaster that had befallen me. It was in the large boat that everything of value had been placed for greater safety. The collection of birds made on the journey up and at Améha, the first ever taken from that interesting mountain; my plants, on which I relied to pay me for the expenses of the trip; the seeds, insects, herbarium specimens, samples of rock, and, most valuable of all, the writing-case with my journal containing extensive notes—the work of months—had all been in the wrecked boat. Jacobson's series of views of Améha, Arichi, and Arawa, with numerous plates of scenes in the rapids and in camp, were gone for ever. The work of destruction had been thorough."

It was indeed a cruel loss. But even more serious was the position in which the party found themselves—only one small boat left, and provisions for but ten days to last them for a journey of 200 miles through an almost foodless country. The remaining boat would, even when heavily laden, carry only a part of the number. The food would be exhausted before they could build a second. They therefore separated, four floating downstream in the boat, while the rest painfully hacked their way through the thick forest on the banks. It soon became evident that the pedestrians could not keep up with the boat, and that if those on the water waited for their companions on shore, none of the party could hope to reach

La Prision again. Berries, an occasional bird, and the palm cabbage were sometimes obtained, but not in sufficient quantities to keep up the strength of the men battling with the undergrowth.

At a spot eighty miles above the Para Falls they decided that the Europeans and four natives should hurry on in the boat to try to reach La Prision as quickly as possible and send back a relief party for those left behind. The boat, laden to the water's edge, accordingly started off, and in due course arrived at the Falls —not before poor old Maite, the guide, had died, worn out by hardship and starvation. The portage round the Falls, being this time downhill, was an easier matter than on the first occasion, but the men were so sadly reduced in strength that even so the task proved almost too much for them. Once on the river below, the worst of their trials were over, and May 25th saw them crawl into a house at La Prision, where they received a kind welcome and food from their former hosts.

As soon as his own immediate needs had been satisfied, Mr. André organised a relief expedition for the poor fellows still forcing their way through the forest. His efforts were wasted, for in a few days the boat returned without any news of the people they had been sent to help, since the latter had struck across country from the river, hoping to reach a settlement where food could be got. What happened to them is uncertain, as nothing has since been heard of them. Most probably they perished among the fastnesses of the forest, which had already been the grave of many a starving wanderer.

CHAPTER XXIV

FURTHEST SKYWARDS

TURN up the map of South America, put your finger on the Andes and follow them southwards till you are in the latitude of Santiago. Your finger-tip will then cover Aconcagua, the highest mountain peak outside Asia. The elevation of its summit above sea-level is, to be exact, 23,080 feet, or rather more than $4\frac{1}{3}$ miles. This mighty mass, rugged as its name, towers above the heads of surrounding crests; so that the mountaineer naturally gives it his most fixed attention when passing over the Andes from Chili to Argentina. Though ninety miles away, the mountain itself can be plainly seen on a clear day from the Pacific coast, while an observer standing on the summit — only two human beings have ever stood there so far as we know—may command a view extending hundreds of miles in all directions, over an area as large as that of England and Wales combined.

This is an age of records and record-making. If a man wishes to become notorious, he may achieve his object by doing something which eclipses all previous performances of a similar nature—it may be fasting, swimming, club-

swinging, it does not matter much which. His fame will, however, be very short-lived if the performance is merely a *tour de force*, with no permanent results, and does not contain some element which may rightly be the object of true admiration.

The explorer sometimes makes records in spite of himself; at other times, after setting out with a definite purpose of reaching spots hitherto unattained by man. But in every case the creation of the record itself is subordinated to some higher aim than that of becoming a nine days' wonder; and this aim is to add a brick to the great edifice of human knowledge.

When, therefore, in October, 1896, Mr. E. A. Fitzgerald started from England with a small party of scientific men and Swiss guides, and the deliberate intention of trying conclusions with Mount Aconcagua, hitherto unconquered by human foot, he carried in his baggage such instruments as should aid in the survey of the mountain and the surrounding country; and his companions were equipped for a thorough study of the animal, vegetable, and mineral kingdoms of the great backbone of South America.

Dr. Güssfeldt, an eminent German explorer, was the first man to attack the Monarch of the Andes. In 1883, accompanied by a few Chilian peasants blest with but a small amount of courage, he set out for the snowy summit, approaching it from the north-west. At an elevation of 11,752 feet he pitched his base camp on an open spot swept by every wind that blew. Facing him rose a gigantic wall of rock, which appeared to stretch

an absolutely impassable barrier between the explorer and the uppermost levels of the mountain. While reconnoitring, he stumbled on a human skeleton, to which still clung a few poor rags, the remains of some wretched treasure-seeker bent on finding the gold which, according to the legends of the country round, lay in profusion on the flanks of Aconcagua.

At last he discovered a way through the rocky wall. With two Chilenos he pressed up it, and presently found himself on the top of the cliff. One of the Chilenos collapsed with frozen feet; the other stuck to him, and together they reached a point some 1,300 feet below the summit. Then a snowstorm came on, and to save their lives they had to beat a hasty retreat, picking up the cripple on the way down. Güssfeldt made a second attempt with even less success; and as he and his men were now worn out a return to Chili became necessary.

Mr. Fitzgerald, Mr. Stuart Vines, Mr. Philip Gosse, the famous guide, Zurbriggen, and five Swiss and Italian porters, inured to mountaineering, reached Buenos Aires early in November. From the Argentine port the railway carried them to Mendoza, the terminus of the Great Western Railway, and the starting-point of the trans-Andine line now being built across the mountains to join the Chilian railway which ends at Monte Rosa. At present it has reached as far westwards as Punta de la Vacas, to which point the expedition travelled over the metre-gauge track—a marvel of engineering.

While the English party approached Aconcagua on

the south, some members of the German Athletic Club of Santiago were following Dr. Güssfeldt's footsteps on the north. So that two independent bands, separated by the mountain and ignorant of each other's movements, were making a race for the summit. It may as well be stated here that the Germans, after gallant efforts, were compelled by sickness and exhaustion to retire from the contest at a height of 21,326 feet above the sea.

Two mountain streams rising in the Aconcaguan glaciers unite at Punta de la Vacas. The more easterly, the Vacas, flows almost due south; the other, the Horcones, runs through a valley which lies north-west and south-east.

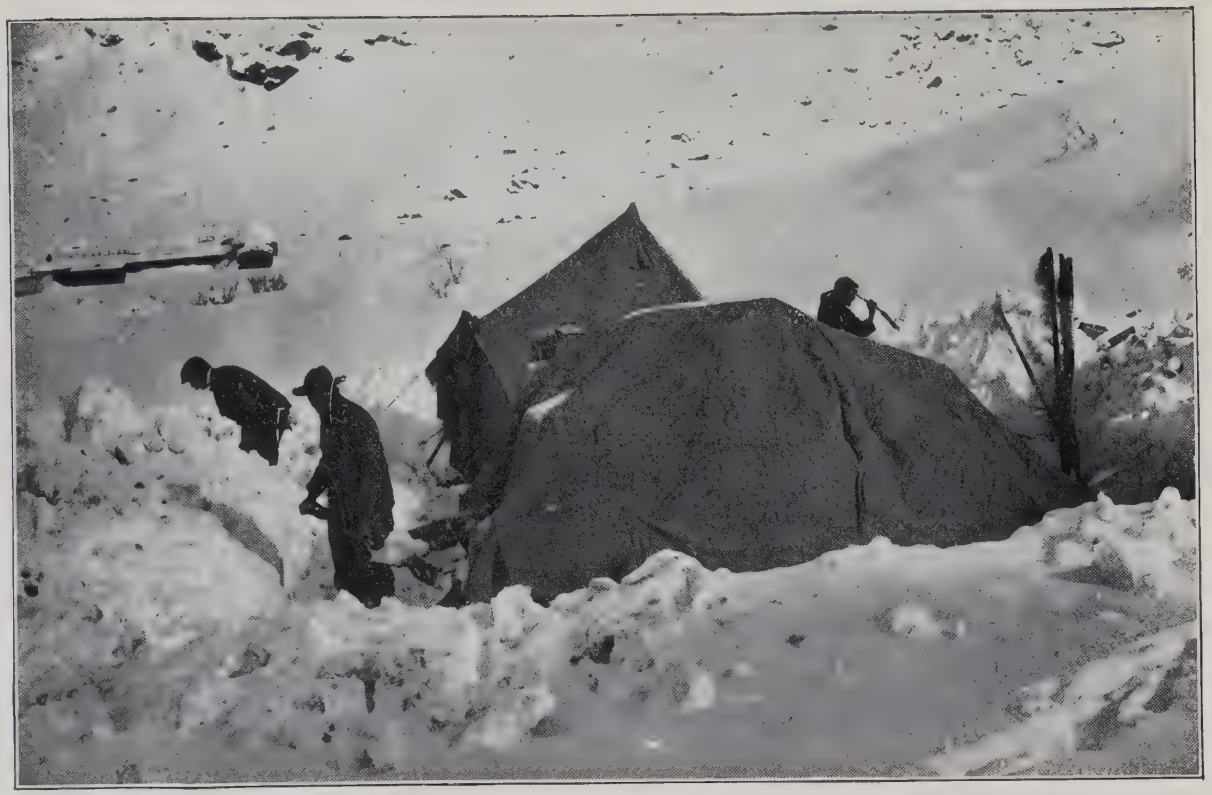
After a few weeks spent in reconnoitring the course of both rivers, Mr. Fitzgerald decided upon the Horcones valley as the best line of approach. A camp was therefore established near its mouth at an elevation of about 9,000 feet, as a base for the attack on Aconcagua. Other camps were pitched at points 12,000, 14,000, and 17,000 feet, in addition to the highest camp of all, on the mountain-side, 18,700 feet above the sea. All the camps were amply provisioned, so that any one might serve as a place of refuge in time of need.

At an elevation of 16,000 feet the party had their first experience of mountain sickness, or *puna* as it is called in those regions. The usual symptoms are violent headache, nausea, and great physical prostration, which makes the least movement a labour. The intense cold also proved very trying, especially as the spirit stove on which they depended for the heating of food and drink refused

to work at such high altitudes. It had been thoroughly tested in London, and acted there well enough; but either because the spirit was bad, or on account of a lack of oxygen in the rarefied atmosphere, it now utterly failed to do its duty. This failure much disheartened the men, as warmth in their food was almost as necessary as the food itself. (Subsequently firewood was brought up in small quantities, and used very sparingly. According to Mr. Fitzgerald, frozen tinned Irish stew is no very tempting fare; and we can well believe it.)

Christmas Day was not, in this case, worthy of its usual adjective. "After twelve miserable hours spent in a very cramped place," says the leader in his address to the Royal Geographical Society—"for our tent was only six feet square, with a sloping roof ending in a peak four feet from the ground—we crawled out upon Christmas morning. One man made a feeble attempt to greet me with a 'Merry Christmas,' I, however, replied that to my mind it was *not* a merry Christmas, and that was the last word upon the subject." In the afternoon, nevertheless, to mark the occasion, he and Zurbriggen climbed to an altitude of 19,000 feet, and had as their reward a most magnificent view of the far-off Pacific. On Boxing Day the guide most appropriately discovered a tin box under a small pile of stones, containing Dr. Güssfeldt's card, at the point where the brave German had to give up his attempt to reach the summit.

At the beginning of the New Year they also made two vain endeavours to scale the mountain. The first time they failed, owing to the Swiss getting his feet badly



Mr. Fitzgerald and his party digging out the base-camp in the northern end of the Inca Valley, at a height of 8,948 feet above sea-level. Four other

frost-bitten—so badly that his companions feared that amputations might be necessary. By dint of rubbing, however, they restored his circulation, taking no notice of the agonised cries which testified to a renewed movement of the stagnant blood. Any boy who has chilled his fingers with snowballing will be able to understand that the return of heat to an actually frost-bitten limb must be painful indeed. In this connection we may quote the words of Colonel Fred Burnaby àpropos of a frost-bite that he got during his famous ride to Khiva. His arms and hands were the parts affected. "In a few moments I awoke, a feeling of intense pain had seized my extremities; it seemed as if they had been plunged into some corrosive acid which was gradually eating the flesh from the bones. . . . I was frost-bitten. . . . There are moments in a man's life when death itself would be a relief; it was about the day when an unfortunate criminal would have to undergo the last dread sentence of the law, and I remember distinctly the thought occurring to my mind, as to whether the physical pain I was then undergoing was less than the mental agony of the poor wretch on the drop."

To return to Aconcagua. The fourth attempt, made on January 14th, 1897, was more successful than its predecessors. Both Fitzgerald and Zurbriggen reached 22,000 feet before the former found it absolutely impossible to go any further. Zurbriggen managed to struggle on, and when he returned to camp that evening, terribly exhausted, he announced that he had actually reached the summit, and had planted Mr. Fitzgerald's

ice-axe there. The elevation attained, 23,080 feet, stands as the record for mountaineering ascents; if the somewhat doubtful 23,700 feet claimed by Mr. Graham on a climb in the Himalayas be excepted. About the exact height of Aconcagua there can be no doubt, as it was taken most carefully by trigonometrical calculations based on a railway survey carried right up from sea-level by Mr. E. A. Lightbody, an engineer of the trans-Andine line.

Not content with conquering Aconcagua once by proxy Mr. Fitzgerald decided to try again, taking Mr. Vines and an Italian porter, Nicola Santi, with him. This time he was stopped at 20,000 feet by sickness; but he urged his two companions to struggle on. That they did most manfully, even up a steep slope of loose stones covering the north-west face of the mountain. The cold and rarefaction of the air punished both men severely; and at decreasing intervals they had to rest, leaning forward on their ice-axes. At last they were on the summit, a snow-free plateau seventy-five paces square, on which they found a substantial pyramid of stones built by Zurbriggen. Mr. Vines added to this a maximum and minimum thermometer, sealed up, together with his card, in a tin box. The next visitor will have the satisfaction of replacing the card with his own, and of seeing what temperatures have vexed the summit since February 13th, 1897.

The view from the top was, as may be imagined, superb. "To the north-west the line of the Pacific stood up high in the horizon, stretching away for over 150 miles. Range after range could clearly be seen between Aconcagua

and the ocean. He seemed to look right down into the valleys between these ranges." To the south-east a precipice nearly *two miles* high drops down to the glacier beneath; and Mr. Vines, looking over the dizzy edge, saw below him great masses of vapour moving about like steam in a giant cauldron.

As a sequel to this victory Mr. Vines and Zurbriggen went south and conquered Tupungato, a great dome that rises to a height of 22,000 feet seventy miles from Aconcagua.

While the climbers were attacking the summit the scientists of the expedition kept themselves busily employed. To Mr. Fitzgerald's eye the mountain slopes, at an elevation of 14,000 feet, were utterly devoid of animal life. Yet Mr. Philip Gosse, who conducted the natural history work, found plenty of specimens—voles, water-dippers, and kites, and, most extraordinary of all, a humming-bird. One morning after sleeping in the open, he awoke and felt something sitting on the brim of his hat; it was a humming-bird, with a brilliant green breast-plate. When he stirred the little creature flew off, but soon returned to the hat, where it continued to preen itself until, after hovering round a little while, it finally disappeared. The occurrence of a humming-bird at such an altitude is more astonishing than the quantity of shrimps found by Captain Scott under the ice of the antarctic regions. What the tiny honeysucker can have expected to pick up in the way of food among the mountains is indeed a mystery, since insect life, with the exception of some flies and tarantulas, was practically non-

existent. "There were even no parasites on the animals. The mules lost all their fleas, and the condors and other birds had none of their customary parasites."

This short account shall be closed by the most humorous episode in the expedition. Mr. Gosse came in one day with a number of insects, and as he could find no methylated spirit to preserve them in, he put them into a bottle of whisky. While he was out collecting fresh specimens his comrades returned, and, all unconscious of this sad misuse of good spirit, consumed the entire bottle. They did not mark or learn the names of the beetles, but they certainly inwardly digested them.

CHAPTER XXV

HOW THE MURRAY WAS FOUND

AUSTRALIA, the latest found of the great continents, is indeed a curious land. It seems to have been kept in reserve as a grand surprise for European explorers; since both its plants, fauna, and physical features appear, in some cases, to belong to an order of things long past in other parts of the world. Its fruit, rarely edible, have their kernels outside. Its trees seldom grow as forests, but are scattered about over wide expanses, and are extraordinary for their height, their evergreen leaves, their curiously twisted branches, or their leaflessness. Among animals none are more quaint than the Australian marsupials—kangaroos, wombats, dasyures—which carry their young in pouches. And what living thing is more anomalous than the platypus, uniting a duck's bill with the body of a large mole and the habits of a water-rat? Or where outside Australia will you find a wingless bird to match the apteryx; or swans that are black? Then again, the shape of Australia is unique, in that its two promontories—Arnheim Land and Cape York Peninsula—run northwards, instead of imitating the southerly trend of Spain, Italy, the Balkan Peninsula,

Arabia, India, the Malay Peninsula, Florida and Patagonia.

Physically, Australia is a great plateau surrounded by an edging of lowlands, which have an average breadth of about 100 miles. The tableland rises to its greatest height in the east and falls gradually westwards. Its most remarkable feature is the almost entire absence of important streams, though at times the internal plains are converted by heavy rainfalls into lakes. With the exception of the Darling, the Murray, the Barcoo, and their tributaries it possesses no rivers of any consequence; and even those mentioned often shrink into a series of isolated pools. It might, therefore, be reasonably expected that imported animals, trees, and plants would find in Australia an unkind mother; but, so far from this being the case, all have thriven among dingy forests, which before furnished a bare sustenance for a few wandering savages. Furthermore, the advent of the settler and his flocks has changed the face of the country by some mysterious natural process. Where stunted tussock-grass once struggled for existence with an arid soil, you may now see a smooth sward dotted by pools of clear water. The sheep have brought moisture with them; how, is indeed an enigma.

The exploration proper of internal Australia commenced in 1788, when Governor Phillip arrived in Botany Bay, New South Wales, with the first batch of transported convicts. As soon as these undesirable immigrants had been settled, a prospecting party discovered the Hawkesbury River and pushed sixty miles up its

many windings. They examined the country on its banks, and brought back conflicting reports, which represented it as at once a beautiful and a desolate region, according to the fortune that had attended their respective journeys.

From that year onward the names of men who attacked the great problem of the interior became legion. Much exploration has been done by settlers in search of fresh pasturage for their sheep, who gradually felt their way across the eastern mountains; and of their individual doings little record remains. Yet in Australia, as elsewhere, certain men have, by the definiteness of their object, their determination, and the importance of their discoveries, won pre-eminence among the crowd—Charles Sturt, who found the Darling, and penetrated far into the central desert; Eyre, who first saw the Lake Torrens; Leichhardt, Stuart, Burke, Wills, Giles, Warburton, Forrest, and many others, whose struggles against hunger, thirst, and heat, and, in only too many cases, their sad fate, fill the grimmer pages of the story of exploration. Discoveries in Australia have been but few as compared with those made in Asia, Africa, and America, where large rivers flow for thousands of miles down from huge mountain chains; and the land is in parts thickly inhabited, or covered with the relics of an extinct civilisation. No counterpart of the Victoria Falls has been found. Australia boasts no Everest or Kenia or Aconcagua; her aborigines, the most degraded of mankind, have no history, and when they finally disappear, will leave no trace of their existence behind them. One great

find, that of gold, in New South Wales, Victoria, and West Australia, is of particular importance, from its effect on the history of the continent; but this was more or less accidental, and not the work of geographical explorers.

As water is of such value in a tropical country, our attention shall first be given to the chief river system, which rises in the mountains running almost parallel to the east coast at a distance of 100 miles, and flows west and south to the great Australian Bight, through a depression in the tableland. The Murray and Darling have been as mines of precious metal to the greatest Australian industry, which supplies the world annually with millions of bales of wool.

In 1817 Surveyor-General Oxley started on an expedition to explore the course of the Lachlan River, a tributary of the Murray. Being turned back by morasses, he concluded that the country in this part of Australia was quite uninhabitable, and that the interior promised to be nothing more than a desolate wilderness. On his return homeward he fell in with the Macquarie, in which he thought he had discovered a great river that probably emptied itself on the north-west coast of Australia after a course of some thousands of miles. In 1818, full of hope, he was despatched to follow up this river, and to his great disappointment found that it terminated in a swamp, or, as he suggested, the edge of a great inland lake. It was Oxley's misfortune to draw false conclusions on both occasions, owing chiefly to the fact that in those particular years an unusual amount of rain had

fallen and given to the country an appearance which it seldom wears.

Eleven years after Oxley's attempts Captain Charles Sturt, of the 39th Regiment, followed up his tracks. He, curiously enough, found the same districts smitten by a terrible drought. "The emus," he writes, "with outstretched necks, gasping for breath, searched the channels of the rivers for water in vain; and the native dog, so thin that he could hardly walk, seemed to implore some merciful hand to despatch him."

His principal object was to investigate the shallow ocean of reeds that had baffled Oxley on the Macquarie. With him went Mr. Hamilton Hume, two soldiers, and eight ticket-of-leave men, fifteen horses, ten bullocks, and a small boat on a wheeled carriage.

They soon reached the marshes. Sturt tried to penetrate the reeds; while Hume and two others endeavoured to turn their flank on the north side. The leader failed in his efforts, but Hume came into camp with a report of a winding sheet of water, which might be the onward course of the river, though it, too, was blocked by vegetation. Whatever way they tried, this eternal tangle of reeds crossed their path. But one day, January 31st, 1829, they suddenly stumbled on a great river, "seventy to eighty yards broad, evidently very deep, and literally covered with pelicans and other wild fowl." This river, the Darling, was flanked by high cliffs, down which the thirsty men climbed to quench their thirst, aggravated by the intense heat. What was their horror and amazement to find that this noble stream was salt—too salt to drink!

So that on the very edge of great discoveries, they were forced to beat a hasty retreat to the Macquarie, where fresh supplies awaited them. Pushing on again towards the north-east they struck the Castlereagh, followed its dried bed down, and once more found the Darling, ninety miles above the spot where they had first discovered it. Sturt and Hume crossed over to explore the country beyond, and found themselves in a boundless, barren plain, containing not a drop of water or a blade of grass. The Darling being salt here too, the expedition had to retire; but their disappointment was somewhat lessened by the discovery of an outlet from the Macquarie marsh —dry indeed, but evidently the continuation of the stream in wet seasons.

Next year the same explorer started out once more to get further knowledge about the Darling, which had now become a thing of great interest to the colony. This time he selected as his highway the Murrumbidgee, flowing westwards through the southern parts of New South Wales. Sturt's description of the land on either side is not enticing:—

"Our route was over as melancholy a track as ever was travelled. The plains to the north and north-west bounded the horizon; not a tree of any kind was visible upon them. It was equally open to the south, and it appeared as if the river were decoying us into a desert, there to leave us in difficulty and distress."

Reeds were again encountered, and the party feared that these would, as before, prove impenetrable. Sturt, however determined to make a desperate effort to break

through. He and his men built a small boat to accompany the whale-boat which had been brought in sections with them; and leaving a few of his companions behind he set out into the reeds on January 7th, 1830. To his surprise, the vegetation gradually diminished, and the voyagers had rather to give their attention to the snags and sunken trees of which the river was full. The banks closed in, the stream became more rapid, and the boats—the smallest had sunk—sped along. Suddenly, to the delight and astonishment of all, they were hurried out into a broad and noble river—the Murray, as it was named after the head of the Colonial Department. While they swept down it natives followed them along the banks, whether from curiosity or hostility they could not at first determine. Near the confluence of the Darling and Murray, where the river became very shallow, a long, sandy spit projected nearly two-thirds of the distance across the channel; and on this spit a large number of blacks had collected, brandishing their weapons in a most threatening manner. As they approached the spit, Sturt stood up in the boat and motioned to the natives to desist; and, on their refusing to do so, he levelled his gun at the nearest savage. The fate of the expedition hung in the balance, or rather, on the pull of a trigger. Had a shot been fired the whole party would probably have been massacred sooner or later. "At the very moment—my purpose was checked by Mr. McLeay, who called to me that another party of blacks had made their appearance upon the left bank of the river. Turning round, I observed four men at the top of their speed. The foremost of them, as soon as

he got ahead of the boat, threw himself from a considerable height into the water. He struggled across the channel to the sandbank, and in an incredibly short space of time stood in front of the savage, against whom my aim had been directed. Seizing him by the throat he pushed him backwards, and forcing all who were in the water upon the bank, he trod its margin with a vehemence and agitation that were exceedingly striking. At one moment pointing to the boat, at another shaking his clenched hand in the faces of the most forward, and stamping with passion on the sand; his voice, that was at first distinct, was lost in hoarse murmurs. Two of the four natives remained on the left bank of the river, the third followed his leader to the scene of action. The reader will imagine our feelings on this occasion; it is impossible to describe them. We were so wholly lost in interest at the scene that was passing, that the boat was allowed to drift at pleasure."

Thus rescued from the hands of the 600 blacks, the expedition pursued its way, and pulled some distance up the Darling—as Sturt felt sure it must be. They then sailed south for the coast, landing here and there to make short trips into the boundless flat on both banks. Messengers were sent ahead from tribe to tribe, to warn them of the coming of the strangers and to avert any likelihood of trouble.

Without encountering any noteworthy adventures the boats reached, on February 9th, 1830, the shallow lake in which the Murray terminates. A sand-bar, scarcely covered by water, separated the lake from the sea, and on

the southern side a heavy surf made it impossible either to launch their boat, or to receive help from any vessel that might appear in the offing. No ship, however, was in sight, and the travellers knew that for their return they must depend on their now sadly diminished supplies, and on the river which had brought them down so swiftly and would be equally difficult to ascend. The black aboriginals were an uncertain element to reckon with; though easily quieted by a strong hand, they might respond as quickly to a call to arms.

Doggedly, and without complaint, the men laboured at their oars, harassed by want of food and the hostility of the natives. After more than two months of ceaseless toil they had fought their way back to the Murrumbidgee, where a relief party met them with provisions, just as the last ounce of flour was being served out. In less than three months they had travelled over two thousand miles, and, by tracking the course of Australia's greatest river, carried out the most important piece of exploration yet attempted in the Island Continent. Like many of his predecessors, Sturt saw in the interior of Australia nothing but unmitigated barrenness and desolation. Even the Murray and Darling were pronounced by him to be useless on account of the country they flowed through. He could not foresee the day when countless bleating flocks would roam the river-banks, cropping the very vegetation that he had despised.

CHAPTER XXVI

AN AUSTRALIAN TRAGEDY

THE dominant note in this, the last chapter of the book, is tragic; not from any desire to give the story of exploration a sad ending, but because the wonderful feat of Messrs. Burke and Wills in crossing the Australian continent from north to south cannot be passed over unnoticed, and to notice it is to tell a sorrowful tale.

The pathos is heightened by the circumstances under which this expedition was despatched. Hitherto the journeys made into the interior had been mainly planned, financed, and executed by private enterprise; though in isolated cases the Government had voted money to aid and promote the search of gold or of a lost explorer; the motive in the one case being self-interest, in the other the promptings of humanity.

South Australia had offered a prize of £10,000 to any-one who, at his *own* expense, should find his way from the southern to the northern ocean. In 1860 the reward was still unwon, in spite of a gallant attempt made by McDouall Stuart, one of Sturt's comrades, in 1845. Two years previously the colony of Victoria had decided on a more generous line of action, at the suggestion of Mr. Ambrose Kyte, a self-made and wealthy citizen. He subscribed £1,000 towards the cost of equipping an

expedition which should win for this colony the honour of first sending an explorer to the Gulf of Carpentaria. Thanks to private munificence and money from the public coffers, the Exploration Committee, as the body responsible for the organisation of the expedition was named, had at its disposal, in 1860, a sum of over £12,000; and preparations were made on a most lavish scale. An agent, Mr. George James Landells, went to Peshawar, in India, in search of camels, and brought back twenty-four animals and a few native drivers. Provisions and supplies of all kinds for a twelve months' journey were provided; and every detail of outfit that would help to make travelling easier and richer in results received proper attention.

With the equipment no fault could be found. But in the choice of a leader the committee, itself composed—with two exceptions—of incompetent men, made the first of the grievous errors which marked the fortunes of the expedition from beginning to end. They selected Robert O'Hara Burke, Inspector of Mounted Police at Castlemaine, as the first in command. Burke was a brave, and in his own calling a distinguished, gentleman; yet he sadly lacked the chief qualification for this post, namely, a thorough acquaintance with surveying and Australian geography. His election can only be explained on the grounds that the Victorians did not wish to go outside the colony for a leader, and that they could not find among their own citizens any tried and experienced explorer.

Mistake number two was to give the second-in-command, Mr. Landells, a position which soon caused

friction between him and his chief; and a further proof of want of judgment is evident from the despatch of the expedition in August, when the dry season scourges the southern half of Australia. Of the third officer, Mr. William John Wills, it may be said that he was eminently fitted for the post of meteorologist and astronomer, though too amiable to make a firm stand against the rashness displayed by his superior.

Along with these three men went Dr. Hermann Beckler, as surgeon and botanist; Dr. Ludwig Becker, as naturalist and artist; and fifteen rank and file, among whom John King, Charles Gray, and William Brahe were afterwards conspicuous for different reasons.

All preparations being complete, the whole party paraded in the Royal Park, Melbourne, under the eyes of ten thousand citizens. The camels, hitherto unseen in Australia, attracted general attention. Everyone was gay and enthusiastic amid the pomp and ceremony that marked the opening scene of this ill-fated expedition. The historian can find a parallel—on a much larger scale—in the sailing of the Athenian fleet from the Piræus bound for the reduction of Syracuse, under the walls of which town the naval supremacy of Athens was utterly shattered.

Burke's instructions were to strike first northwards from the Darling to Cooper's Creek, and there establish a depôt, as a base for a further advance. At Laidley Ponds, the place whence, fifteen years before, Sturt had started for the interior, a quarrel which broke out between the leader and Mr. Landells resulted in the return of the latter to Melbourne. Mr. Wills took his place as second-in-command.

For the journey to Cooper's Creek, Burke permitted

Artesian bores in Queensland, which deliver millions of gallons daily, turning the parched plains into a lake (as shown in the upper illustration), and supplying water to huge flocks of sheep. In this manner has science rendered habitable a country that early explorers found waterless.

himself to be guided by a man named Wright, who, though merely an ignorant and uneducated overseer of a sheep station, was installed in the position left vacant by Wills' promotion. This appointment had disastrous results, since Wright showed no qualities that could win the respect of his subordinates.

The major part of the expedition was left behind at the Darling, while Burke, Wills, and six men proceeded to Cooper's Creek, with five horses and sixteen camels. On October 19th they reached the river, after a twenty-one days' march. Burke made a depôt and sent Wright back to fetch up the main body, giving him a letter of recommendation to the committee as a satisfactory colleague. Instead of hurrying back, the ex-overseer wasted six whole weeks, a period of great irritation to the Cooper's Creek party. At last Burke's hasty temper made him refuse to wait any longer. He decided to divide the little band of eight into two, to leave four men at the creek, and to make a dash for the gulf with Wills, Gray, and King. Brahe was put in command of the depôt; and Burke set out, taking six camels, two horses, and three months' provisions, but no means for making the journey really valuable, in the absence of the botanist, geologist, and naturalist. The desire for fame seems to have entirely got the upper hand of his common sense. Dreadful was the penalty he had to pay.

It is most unfortunate that Burke kept practically no record at all of his journey; and that Wills contented himself with a bald statement of the day's doings, unrelieved by the lighter touches that give soul to an explorer's log-book. We read of watercourses, ridges of

red sandstone, grassy plains, plentiful game, and deep quagmires in which the animals floundered painfully. Otherwise there is not much to notice in their progress to the Cloncurry, a tributary of the Flinders, which they followed down to the sea, or rather to the impenetrable mangrove forest which edged the gulf at the point where they struck it. The Australian continent was thus for the first time crossed from shore to shore; but how uselessly is shown by the fact that Burke fancied himself a hundred miles further west than he really was when he reached salt water.

An immediate return was rendered necessary by the want of provisions, which had dwindled to a total weight of 185 lbs., their future sustenance for possibly two months. They retraced their steps as far as the nearer edge of the stony desert to the north of Cooper's Creek, finding their troubles increase as the want of proper food sapped their physical strength. Gray fell ill and died. The three survivors now saw that they were merely travelling against time; so they left everything behind except their firearms and a little meat and pushed ahead across the desert by forced marches, calculating that they would be able to last out until they reached the depôt. Alas! when, utterly exhausted, they stumbled into the stockade, they found that men, animals, and tents had disappeared. In despair they called for Brahe and his companions; no answer came. Burke flung himself down, overcome by the hopelessness of their position, far away from all human aid and the food that alone could save them. Wills, of a more patient temperament, searched round the camp and saw cut in the bark of a tree the words: "Dig, 21 April, 1861."

They dug, and there soon came to light a box of provisions and a letter from Brahe, which said :—

"The depôt party of the Victorian Exploration Expedition leaves the camp to-day to return to the Darling. I intend to go south-east from Camp 60, to get into an old track near Balloo. Two of my companions and myself are quite well; the third—Paton—has been unable to walk for the last eighteen days, as his leg has been severely hurt when thrown by one of the horses. No one has been up here from the Darling. We have six camels and twelve horses in good working condition."

The ink of the letter was hardly dry, for Brahe's party had left the depôt on the very day when Burke's entered it. The closing sentence, unfortunately, made the latter abandon all hopes of overtaking those in front; though, had they but known that Brahe was retreating by easy stages, they might, at the cost of great exertions, very possibly have caught him up. The story of Burke and Wills receives its most tragic colour from this extraordinarily cruel stroke of fortune. Like the Israelitish murderer who fell stricken by the avenger's arrow at the very gates of a city of refuge, so were they within a few miles of rescue when their doom was sealed. There is no parallel in the story of the explorer. Had not the death of Gray delayed them a day, they would have been saved.

In defence of Brahe it must be said that he had, as Wills himself admits in a letter that does credit to the writer's cheerfulness and gratitude, left ample provisions to take them to the bounds of civilisation; and things might have ended happily after all, but for other mistakes on the part of Burke. In the first place, he decided to

strike westward from the creek and try to reach Adelaide *viâ* Mount Hopeless, instead of following the route by which he had come up from the Darling.

Secondly, the cache was carefully covered in again, without any external marks to show that it had been disturbed, so that when Wright and Brahe returned to the creek to see whether Burke's party had visited the spot they concluded that such a thing could not have happened. They, too, were blameworthy because they never dug up the cache to make quite certain. Had they done so they would have found a letter deposited by Burke, giving the route that he had taken. At every turn the wrong thing was done, or the right thing left undone.

The food that the wanderers took with them from the depôt soon gave out, and once more they found themselves facing starvation. To pursue their intended route being obviously impossible, Wills made his way back to the depôt and left a note in the cache, as follows :—

"We have been unable to leave the creek. Both camels are dead. Mr. Burke and King are down on the lower part of the creek. I am about to return to them when we shall probably come up this way. We are trying to live the best way we can, like the blacks, but find it hard work. Our clothes are fast going to pieces. Send provisions and clothes as soon as possible. William J. Wills."

He added as a postscript : "The depôt-party having left contrary to instructions, have put us in this fix. I have deposited some of my journals here for fear of accidents."

The words "the best way we can, like the blacks," refer to a diet of *nardoo* flour, made from the pounded seeds of a kind of clover, of which scarcely enough for two meals

could be gathered in the course of a day. This diet was quite insufficient for a white man, though, if supplemented with a little fish, it sustained the native black fellow. The mere collection and pounding of nardoo was too great a strain on men enfeebled by long privation; and Wills would neither have reached the depôt, nor been able to return to his companions, had not the aborigines taken compassion on him and treated him with great kindness.

The want of clothes afflicted the three men no less than the scarcity of food. Their garments had long been reduced to rags, which offered very little resistance to the increasing cold of the long nights. The one chance now remaining to them was to seek out some camp of friendly natives where they could stay till help arrived. But Wills' strength had utterly failed. He was left under a tree with an eight days' supply of water and nardoo, while the others started to look for succour. It never came for poor Wills. He died, alone in the wilderness, calm and resigned, like a good and gallant man. The last entry in his notebook shows the state of his mind: "My pulse is at 48 and very weak, and my legs and arms are nearly skin and bone. I can only look out, like Mr. Micawber, for something to turn up, but starvation on nardoo is by no means very unpleasant, but for the weakness one feels, and the utter inability to move oneself; and as far as appetite is concerned it gives me the greatest satisfaction."

The next day, June 27th, Burke also succumbed; and at his own request was left unburied, a pistol in his right hand. King managed to stagger on and make friends with some natives, among whom he lived until rescued, two months later, by one of the relief parties sent out to

scour the country in all directions. King was able to show to Mr. Howitt, the leader of the relief, the spot where lay the body of Burke, now reduced to a skeleton. His remains were wrapped in a Union Jack and reverently buried; and the same honour was done to those of Wills. In 1862 the people of Melbourne sent Howitt again to Cooper's Creek, to exhume and fetch home the bones of the explorers to the Capital, where they were accorded a public funeral; and where a splendid monument was afterwards reared in memory of the men who took a leading part in the First Crossing of Australia. Reversing the words of Shakespeare, the Melbournians allowed whatever errors had been committed by the brave two to be buried with them, and their achievements to live in everlasting marble. Perhaps his tragic fate has given to Burke, in the estimation of his countrymen, a place disproportionate to the actual value of his long journey. We cannot imagine that he was a braver man than a hundred other explorers, while we know that most excelled him in judgment; yet he did in his own fashion what he wished to do, and if anyone would cast a stone at him let him think of that awful moment at Cooper's Creek when the starving men reached the deserted camp.

This chapter cannot be closed without some reference to Mr. John McDouall Stuart, who was making a journey from south to north simultaneously with the explorers whose fortunes have just been recorded. While they took a line which, roughly speaking, followed the western boundaries of the three eastern colonies, Mr. Stuart, starting five months later, devoted all his energies and well-tried skill to a route some hundreds of

miles further west, on a line which would practically bisect Australia, and is the course since taken by the Overland Telegraph. Stuart was a firm believer in the good old motto, "If you don't succeed at once," etc. He made no less than five attempts to cross the interior plateau, and from each journey brought back much valuable information, for which he was but shabbily requited by the South Australian authorities. Not daunted by his failures in 1858 and 1859, he set out a third time in 1860, attracted by the reward offered to the first man who should march from ocean to ocean, and reached Mount Stuart, where, in the centre of Australia, he proudly unfurled the Union Jack. After penetrating some miles further north he was compelled by the usual enemies of the explorer, Hunger and Thirst, to beat a retreat south again over his northward path; though not till he had done a great deal of useful work in the way of reconnoitring the country.

In 1861 a fourth try was very nearly successful. He got as far north as a point only sixty miles south of the Victoria River, which flows into the Cambridge Gulf, and then found further progress barred by impenetrable thorny scrub. To his bitter disappointment he was once more obliged to sound the retreat. He arrived back in Adelaide shortly before the sad news of Burke's fate was brought to that city.

The New Year, however, saw him start for his final attempt, which had a very practical object, namely, to decide the best route for the Overland Telegraph. On this occasion, when the 17th parallel had been crossed, he worked further east than before, and, to his great delight, struck

the Adelaide River, which led him down to the Clarence Strait between the mainland and Melville Island. Not far from the shore his party hoisted the Union Jack on a tall palm tree, at the foot of which they buried a tin box containing a declaration to the following effect:—

"The exploring party, under the command of John McDouall Stuart, arrived on this spot on the 25th day of July, 1862, having crossed the entire continent of Australia, from the Southern Sea to the Indian Ocean, passing through the centre. They left the city of Adelaide on the 20th of October, 1861, and the most northern station of the colony on the 21st day of January, 1862. To commemorate the happy event they have raised the flag bearing his name. All well. God save the Queen."

During the return journey Stuart suffered terribly from scurvy, and when he entered Adelaide (1,800 miles from the Adelaide River) he was but a shadow of his former self. The same day, by a curious chance, Howitt's search party reached the city with the box containing the remains of Burke and Wills, on their way to Melbourne. While the dead were honoured with statues, the living received from the Government a grant of £2,000 and a lease of land rent-free for seven years. Stuart was also presented with a gold medal and a watch by the Royal Geographical Society as a recognition of the valuable services he had rendered to the country in the series of explorations that had robbed him of health and strength.

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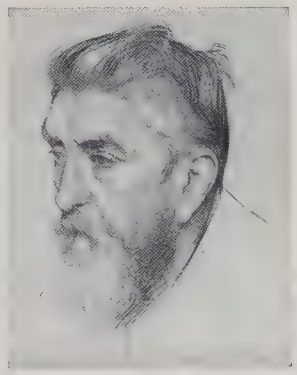

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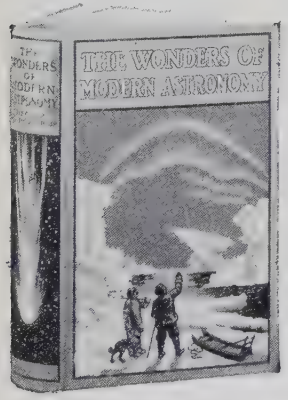

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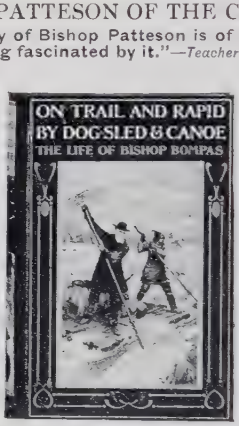

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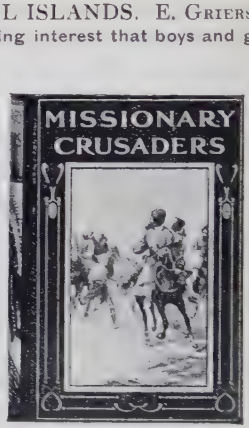

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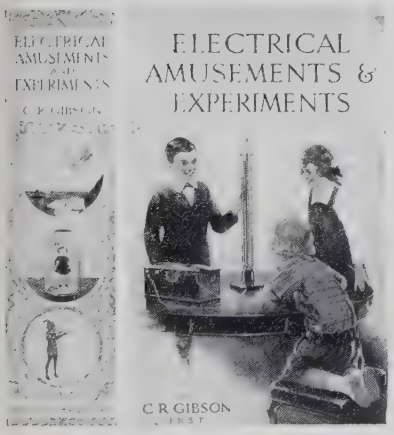

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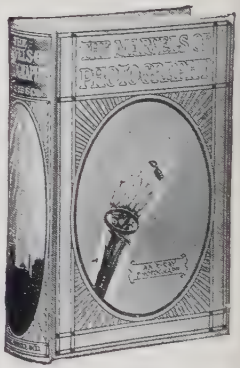

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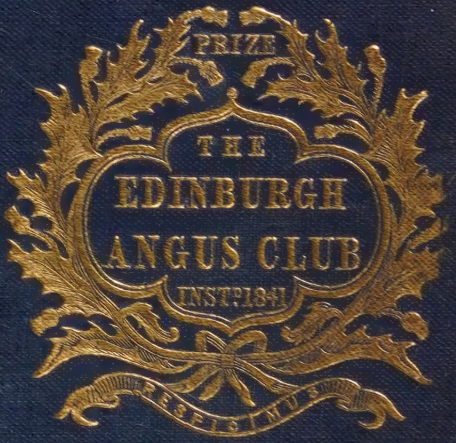
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